Horticulture Innovation Australia

Final Report

Riverina Fruit Fly Campaign Coordinator

Tammy Galvin
NSW Department of Primary Industries

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CT12010

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Summary

Objective

To drive the Riverina Biosecurity Inc. (RBI) fruit fly campaign, and successfully coordinate and implement the voluntary, grower-driven fruit fly control program, a project coordinator is required.

This project funded a Riverina Fruit Fly Campaign Coordinator to implement a grower-driven fruit fly control program within the Riverina covering all fruit fly susceptible crops.

A project coordinator was appointed in the first year, David Troldahl. There was then a gap with no project coordinator until the second project coordinator, Tammy Galvin was appointed.

Target Audience

The target audience was commercial growers of fruit fly susceptible crops in Riverina council areas of Leeton, Griffith, Carrathool, Murrumbidgee and Narrandera; Prune Growers Association; Wine Grapes Marketing Board; the five local government authorities (LGAs) of Leeton, Griffith, Carrathool, Murrumbidgee and Narrandera; backyard growers within those five council areas including residential tenants renting through Real Estate Agents; other land managers such as irrigation companies (Murrumbidgee Irrigation-MI, Coleambally Irrigation Cooperative Limited-CICL), crown land managers, LLS, Rail NSW, State Water, and National Parks.

Key Outcomes

In summary, Riverina districts have experienced LOWER Qfly numbers compared to 12 months previously. The overall result in the grower and packer community is a readiness to accept that horticulture must collaboratively manage Qfly. Horticulture is critical to the Riverina economy. A Plant Biosecurity CRC (PBCRC) funded Grower Survey was prepared by Australian National University PhD Candidate Heleen Kruger (See Appendices B and C) Of the respondents to the survey, 83% said that horticulture was of high importance to the household income. Given that Qfly is a major problem for the horticulture industry, the pest can impact significantly on horticulture income.

The greatest achievement of the campaign, overall, is the acceptance of growers, packers/processors that Qfly is here to stay and that they have accepted the pest and now prepared to move forward proactively. From one-on-one engagement with growers, packers/processors, greater professional trust has developed and support for the Riverina Fruit Fly Campaign.

The 25 (100%) packing sheds have adopted the policy of 'No bait spray, trapping then no taking of fruit'. They request growers to submit evidence of Qfly management on farm orchard (see Appendix H).

It could be stated that the lowering Qfly numbers trapped in DPI traps has been impacted by the combination of the significant increase in grower and residential area routine protein baiting, use of MAT traps and female biased fruit fly lure, and removal of unwanted and 'rogue' Qfly host plants. Consequently, these community management actions of Qfly have a flow-on effect throughout the Riverina region with positive momentum.

The selection process for the Riverina Fruit Fly Campaign Coordinator (RFFCC) was conducted via an

open tendering process; advertised through HIA, Citrus Australia and local newspapers. The selection committee included Andrew Harty (CAL), Alison Anderson (HIA) and Peter Davidson (RBI Chair).

Summary as follows from Table 1.0 Outputs (Project Outputs Table attached in Appendix L in detail):

- More than 350 grower extensions
- More than 680 backyarder extensions
- More than 300 industry and other extensions
- More than 300 council extensions
- 1 grower and industry database developed
- 21 Field Day/Public Event involvements
- Approximately a 20% increase in sales of Queensland fruit fly management products from resellers
- Collaboration with 13 websites for display of Queensland fruit fly management information and updates
- Approximately 25 newspaper article inclusions (see Appendix J)
- 23 general newsletters produced (see Appendix K).
- Approximately 21 radio broadcastings for Qfly management related topics
- Successful television campaign delivered with positive grower response
- 1,483 hectares approximately of Qfly host plants removed across 6 stakeholders groups
- 4 rates notices inclusions in campaign area to approximately 20,000 rate payers, 1 inclusion out of area-Wagga to approximately 64,000 ratepayers
- 2 inclusions in real estate agent correspondence to landlords/tenants in campaign area
- 7 television campaigns
- 8 radio campaigns
- 19 Queensland fruit fly management workshops with 303 attendees
- 2 Commercial Grower and Backyard Grower Qfly management guides developed- guides are included in Appendices M and N
- 3 different systems of bulk SMS Qfly alerts were used to notify growers
- 1 children's book written by a student
- 7 general Qfly management presentations to 93 attendees
- 28 collaborative partnerships formed and developed
- 2 cost benefit of Qfly management reports completed (see Appendix A for a leading packing shed cost benefit report)
- 1 logo developed for RBI (image located at Appendix I)
- 20 meetings involving RBI/RFFCC aiming to affect positive practice change
- Additional $25,770 ex GST sought towards Riverina Fruit Fly Campaign externally
- Increased rapport to gain packers/processers/councils professional trust is gradually building greater fruit fly management participation from all community growers-commercially and backyarders. = ONE-ON-ONE ENGAGEMENT.
- Murrumbidgee Irrigation (MI) and Coleambally Irrigation Cooperative Limited (CICL) engaged to remove Qfly host plants from land under their jurisdiction. These organisations work with neighbouring land managers, private and non-government, to ensure Qfly host management is carried out effectively.

- The grower survey (see Appendix B) distributed and returned with Heleen Kruger (PhD Candidate ANU) November-December 2015 has shown positive momentum for the leadership of RBI, DPI and Riverina LLS. Results are in Appendix C.
- The most recent outcome of the campaign has been the work of a Riverina LLS Climate Change Degree student/employee (Allie Hendy) preparing Cost Benefit Report of Not Managing Queensland Fruit Fly (*in submission*).
- Discussions are underway with Riverina LLS regarding a possible future project to target blackberry infestations on waterways (blackberry is a weed of national significance (WoNS) which may attract Australian Government funding under the Environmental Trust program).

Keywords

Queensland fruit fly, fruit fly campaign, Qfly campaign, grower-driven farm routine protein baiting programs, community awareness, Integrated Pest Management, AWM (Area Wide Management), and biosecurity engagement.

Introduction

This project funded a Riverina Fruit Fly Campaign Coordinator to implement a grower-driven fruit fly control program within the Riverina covering all fruit fly susceptible crops.

This program was initiated by firstly developing a Business Case/Plan for a Grower-Driven Fruit Fly Control Campaign in the Riverina, for all commercial fruit fly susceptible crops in the Riverina. As a result of the Plan, in-principle commitment has been gained from many of the fruit fly commodity grower groups of citrus, cherries, prunes, wine grapes, and major growers of summerfruit. The aim of the program was to get commitment from all stakeholders to get maximum control of fruit fly.

The Riverina Fruit Fly Campaign Coordinator reported to the Executive of the RBI.

As this project was funded through HIA the Riverina Fruit Fly Campaign Coordinator was also accountable to the HIA Portfolio Manager and required to provide acceptable milestone reports and updates as per contract / HIA requirements.

Methodology

The early days of the campaign lent itself to delivering through quantitative achievements. Through the process of monitoring, evaluating, reporting and adaptive management with improvements the campaign gradually incorporated a more qualitative methodology of engaging stakeholders, with priority on growers and packers/processors.

The target audience was commercial growers of fruit fly susceptible crops in Riverina council areas of Leeton, Griffith, Carrathool, Murrumbidgee and Narrandera; Prune Growers Association; Wine Grapes Marketing Board; the five local government authorities (LGAs) of Leeton, Griffith, Carrathool, Murrumbidgee and Narrandera; backyard growers within those five council areas including residential tenants renting through Real Estate Agents; other land managers such as irrigation companies (Murrumbidgee Irrigation-MI, Coleambally Irrigation Cooperative Limited-CICL), crown land managers, LLS, Rail NSW, State Water, and National Parks.

The campaign was designed to reach the local audience yet proved to be far out-reached than anticipated by extending to the regional, national and at times international level. This did prove to be onerous at times with only 3 days per week to achieve milestones scheduled.

An advisory group for the Riverina Fruit Fly Campaign Coordinator was formed from the Riverina Biosecurity Inc Executive. The campaign was guided and reported, primarily, to the Chair of RBI.

Campaign Planning

The scope and schedules were developed through monthly activity plans based on Annual Work Plans. The plans were developed and managed adaptively through regular monitoring of achievements in order to reach that overarching objective of *'Driving the farm-based control program amongst growers, packers and processors of all host crops in the region; this includes fruit fly management in both commercial and home garden fruit fly host plants'*.

Monitoring and Evaluation Framework

A MERI framework was set up by the second campaign coordinator with Riverina LLS. The MERI report is included in the evaluation and discussion of this final report. Rigorous reporting that helped monitor efficiency and effectiveness of the project strategies and the monitoring and evaluation framework. As this project was funded through HAL (now HIA) the Riverina Fruit Fly Campaign Coordinator was also accountable to the HIA Portfolio Manager and required to provide acceptable milestone reports and updates as per contract / HIA requirements. The second campaign coordinator had undergone training with Roberts Evaluation with Riverina LLS/Murrumbidgee CMA for project management monitoring, evaluating, reporting and improvement for federal and state funded projects.

Biosecurity Community Engagement

Kruger (2012) discusses in detail strategies, BMPs (best management practices) and tools and mechanisms to guide those working in the biosecurity field in biosecurity engagement. The second

campaign coordinator worked closely with the above mentioned author to continually fine tune the approach to achieving the targeted objective of the Riverina Fruit Fly Campaign through community engagement methods. By far, although time is required, the most significant method for grower audience has been by individual on-farm visits.

This method was achievable with some planning and scoping of time and coordinating with growers. The overall outcome was developed rapport with growers that will continue post campaign completion.

Other Specific Activities of the Riverina Fruit Fly Campaign Coordinator Included:

- Driving the farm-based control program amongst growers, packers and processors of all host crops in the region; this includes fruit fly management in both commercial and home garden fruit fly host plants.
- Provision of information and advice on trapping, bait spraying and MAT (Male Annhilation Trap) (see Appendices M & N for Qfly management information specifically for growers and backyarders)
- Being a first port of call for all fruit fly control queries in the region.
- Setting up a communications network which effectively spreads the fruit fly control message to all key stakeholders in the community: growers, packers and processors; town residents; and local councils (see Appendices J and K for newspaper items and general news).
- Engaging with NSW DPI and local government on the activities they will undertake as part of the campaign, including complying with the Code of Practice, maintaining the trapping grid, spray compliance exercises and controlling fruit fly in towns.
- Develop strategy with RBI to identify untended orchards, untended (or vacated) town / village gardens and council owned reserves (including "rogue" fruit trees established on public road and reserves).
- Measuring the success of the campaign through the mechanisms listed in the Plan (RBI Business Case) and Industry Adoption section of this proposal , and
    - participating in regular reviews of the campaign with Riverina Biosecurity Committee, NSW DPI and local councils
- Identifying additional means of funding the campaign, including sponsorship from local businesses and contributions from local councils. (Note that lobbying of NSW government for funding was NOT part of this position description).
- Managing a budget of campaign costs, and reporting these to the RBI Chair.
- Reporting to all RBI meetings on campaign progress, issues, successes and costs.
- Developing action plans with the RBI or committee sub-group on a monthly basis or shorter time period.
- Assisting RBI Chair with media engagement (note that this project did NOT fund any agri-political activity). (see Appendices J and K for newspaper items and general news).
- HIA milestone reports as required.

Outputs

The overarching outcome that was targeted from the project was grower-driven bait spraying to be applied on-farm with ongoing pressure to come from the packers and processors.

There were, at large, communication material outputs that covered a range of areas that produced beneficial results for the RFFCC project that were, in summary, related to grower and community Queensland fruit fly management information. These outputs were achieved throughout the life of the Riverina Fruit Fly Campaign and are attached as an Appendix A. due to the size of the table.

Outcomes

A coordinated Queensland fruit fly management (and community education) program was the overall outcome of the project. Success of the project is measured by:

1. This outcome was listed in the original project plan: *Nil larvae identification's by NSW DPI audits for citrus, cherry, prune and wine grape growers.* Although, this outcome was not entirely 100% achievable, there has been a reduction of Qfly numbers in DPI trap reports in comparison to previous years.

   Initial outcomes expected from the project follows. Some of these have not been possible in this project due to restrictions.

   - If nothing happens – unsaleable product
   - Produce crops that are saleable
   - Interstate trade maintained – ICA development required using systems approach (e.g. ICA 28) THIS WILL BE ADDITIONAL TO THIS PROJECT
   - Maintain trade to export markets including, for example, USA, Japan and New Zealand (the citrus industry lost access to Indonesia recently and the USA current require a PFA (Pest Free Area) to be in place – therefore an urgent issue).

2. Packers and processors refusing loads unless proof of baiting is provided- spray diary and receipts of bait/chemical purchase (See Appendix H for example correspondence templates).

3. Increase of bait/chemical (litres and fruit fly traps) sales across Riverina.

Industry Adoption

Measurements of campaign success include:

1. Trapping numbers and information

A decrease in the number of fruit fly caught indicates the spray program is having an effect. It must be

noted that changes in climatic conditions will also need be taken into account with increasing winter temperatures and less frost's. Over time, this will likely have an adverse effect on Qfly trapping numbers over the seasons.

2. Monitoring Infested Fruit Rejections

A formal system of monitoring infested fruit rejections from packhouses, processors (juice factories) and markets was implemented. A streamlined reporting process was developed which required this information from AQIS, NSW DPI, individual packhouses, processors, wholesale markets and supermarkets, being reported directly to the Riverina Fruit Fly Campaign Coordinator for immediate action. No reports have been returned of infested fruit and packers/processors are now vigilant with monitoring incoming produce with piece checks and reports for likely sting marks.

3. Monitoring Results of NSW DPI Compliance Program

Senior Compliance officers from NSW DPI were to notify RBC a summary of any breaches (without grower identification) to the Compliance program. To date, nil breaches have been reported in Riverina, from.

4. Monitoring chemical & yeast protein sales

An increase in sales volume indicates that growers are bait spraying their farms. An increase of approximately 20% in chemical and yeast protein sales as well as other Qfly management products occurred in the Riverina area. Growers are generally in contact with RFFCC in regards to spray programs and discussing what is working and what is not. Ongoing communication is still required to keep growers and packers/processors informed on product updates and changes.

5. Verbal communication and feedback between growers and/or contractors

This mechanism has assisted in tracking non-compliance and indicated if some or no coverage is being achieved in certain districts. Growers who undertake a vigilant spray program will not tolerate a neighbour who is not taking part in the control program. 86% of Riverina respondents to the Grower Survey said that Qfly infestation on nearby land makes it more difficult to manage Qfly on their own properties. Also, the growers are not tolerating 'abandoned' orchards any longer.

6. Communication with, and feedback from, NSW DPI Horticulturalist and field officers

A communication strategy was implemented to allow feedback from field officers (Wine Grapes Marketing Board, citrus packhouses and Prunes Australia) and the NSW DPI Horticulturalist reported to the RBC via email.

7. Communication with, and, feedback from Riverina IPM Pty Ltd

Same process as point 6 above.

Additional measures of success are:

- An attitudinal shift in momentum towards self-determination in achieving market access. The Grower Survey showed that 64% of respondents 'Strongly Agreed' that 'An 'area of low pest prevalence' is valuable in negotiating domestic market access as part of a systems approach' (Appendix C for survey results)
- Positive results in grower extensions (see Appendix L for project outputs)
- Number of backyarder extensions (see Appendix L for project outputs)
- More than 300 industry and other extensions (see Appendix L for project outputs)
- The improvement in 'shared responsibility' of Qfly management between councils and other stakeholders such as other land managers, including Real Estate Agents (see Appendix D, E, F & G for example correspondence templates)
- Continual communication from the community at large proceeding the completion of the RFFC
- Positive feedback from growers on RFFC television campaigns
- Interest in Qfly topic from school students
- Number of partnerships formed and developed (see Appendix L for project outputs)
- Additional external funding secured in support of Qfly management
- Ongoing communication from packers/processers/councils indicates professional trust can create unity within communities = shared goals to manage Qfly to assist growers gain market access
- Murrumbidgee Irrigation (MI) and Coleambally Irrigation Cooperative Limited (CICL) engaged to remove Qfly host plants from land under their jurisdiction. These organisations work with neighbouring land managers, private and non-government, to ensure Qfly host management is carried out effectively.
- The overall positive results in Heleen Kruger's (PhD candidate ANU) grower survey towards routine Qfly management, the organisations of DPI, RBI and Riverina LLS, and the where growers chose to go for Qfly management information (DPI and Riverina Fruit Fly Campaign Coordinator)
- Grower understanding and determination towards achieving AWM (Area Wide Management)
- The role of the campaign with DPI (Dr Bernie Dominiak) in field work investigating the comparison between the DPI standard lynfield traps and Probodelt cone trap (see Appendix O)
- The involvement of a new Qfly host identified in rose hips (see Appendix O)
- The most recent outcome of the campaign has been the work of a Riverina LLS Climate Change Diploma student/employee (Allie Hendy) preparing Cost Benefit Report of Not Managing Queensland Fruit Fly (*in submission*).
- Riverina Visitors Centre's working with the project regarding messages to visitors about bringing fruit into the area (see Appendix P for visitor information)

Evaluation and Discussion

Monitoring, evaluating, reporting and improvement have been undertaken either formally or informally throughout the campaign. Consistent feedback has been sought on how the project can improve through each RBI meeting and through individual grower qualitative feedback. Adaptive management has been utilised with reference to effectiveness and efficiency of the campaign.

Engagement methods have been constantly reviewed throughout the RFFC. Initially, the benchmark was to engage larger grower and group numbers (this still did and does occur, albeit), however, the most effective approach has been to offer on-farm visits where growers/packers/processors may be able to learn as much as they can on a qualitative plane. This approach has ultimately lead to a proactive stance from not only grower/packer stakeholders but, to some degree, urban residential backyard growers, council and other land manager stakeholders. When packers/processors were not 'putting pressure' on growers to bait and prove they are baiting, the growers were less inclined to routine bait on a weekly to ten day basis.

The Riverina Fruit Fly Campaign, it can be stated in concluding, was successful in engaging stakeholders in attitudinal change towards accepting that Qfly is present yet is manageable with a farm management plan in place. The project got back on track after a period of time with no coordinator. Time was required for the second coordinator to develop grower and industry relationships. Three days per week limited the effectiveness despite the overall achievements of the campaign. In terms of providing Qfly management extension locally to the growers and the community at large, it was necessary to monitor heavily the amount of time that was taken by external parties, including out-of-region extension calls, emails and requests.

The premise of the entire campaign was that the message of Queensland fruit fly control must be unified and embedded in grower and backyard grower culture. It was emphasised that it is crucial for crop Qfly management that routine ongoing grower-driven bait spray program be incorporated into biosecurity management programs on a 7 to 10 day schedule during the growing seasons.

Results from Heleen Kruger's recent Plant Biosecurity CRC (PBCRC) funded grower survey (see Appendix C) in the region showed that 96% of respondents apply protein baiting for Qfly management. This significant percentage indicates the success of the campaign but also the chosen path of communicating through packers/processors and on-farm visits.

Another surprising, yet positive, finding of the survey was that 24% of the respondents mulch fallen fruit and 10% pick up fallen fruit. It has been found that orchard hygiene is an important factor in eliminating Qfly attack. This will be an educational item that will be focused on in the future.

A project review workshop was held at the end of 2015 with Riverina LLS. The RFFCC was invited to participate to evaluate the Riverina Fruit Fly Campaign project. Some excerpts from the report follows:

RIVERINA FRUIT FLY CAMPAIGN

No. of growers involved: 420
No. of packers involved: 25
No. of processors involved: 3

Key Evaluation Questions

How effective was the project?

- What worked well?

- The building of working relationships with many packers and processors. This outcome has been particularly apparent with the increasing of greater Queensland fruit fly activity within commercial orchards that has impacted yields. Packers and processors are gradually moving towards a 'no baiting, no taking fruit' policy. This result will move the Riverina towards a greater collective capacity to manage Qfly.

- The one-on-one engagement process between Riverina Fruit Fly Campaign Coordinator and growers.

- The support from BES Manager Ray Willis and Team Leader Michael Leane enabled the project to gain greater momentum within Riverina LLS. The support network within DPI: Daryl Cooper (Biosecurity Compliance, Yanco), Wayne Norden (Biosecurity Compliance, Yanco), Bernie Dominiak (Leader Regional Pest Management , Plant Biosecurity, Orange)

- Media, generally, only looked at the positives of what the campaign had to offer. They were supportive of putting campaign items to the top of their priority list.

- Participation in the Grower Survey by growers (see Appendix B and C)

- What didn't work well?

- Limited 3 days per week on the campaign. It needed to be full time as too much time gets swallowed in numerous reporting requirements instead of achieving tasks.

- Communications input: Limited appreciation and understanding of the importance of Queensland fruit fly impact on growers livelihood. This has impacted on Riverina LLS growers. The campaign would have excelled more as running as a stand-alone communications project with clear concise communications strategy at the beginning.

- Limited budget control from the Riverina Fruit Fly Campaign Coordinator. This made it extremely difficult to pay suppliers from the campaign budget with two budgets: one within Riverina LLS and one with Riverina Biosecurity Inc.

- Technically: no capacity within Gmail to send out bulk SMS notifications to growers for Qfly high risk periods

- Limited funds to produce paraphernalia to attract more visitors to field day stands.

Were there any unanticipated outcomes as a result of this project - positive or negative?

- Unplanned funding of $11,000 from Riverina LLS for Community Qfly Management workshops in 2014.
- Unplanned funding of $14,450 to develop 2x DVDs/Youtube videos on Qfly management for commercial growers and backyard growers.
- A positive that came out of the project was the degree of which the packers and processors were prepared to encourage their growers to be compliant with routine baiting programs to manage Qfly. The result has been far greater than anticipated with grower Qfly management workshops planned for the September period of 2015 through packers and processor sheds.
- Also, an unexpected positive result has been the capacity building with the growers through one-on-one engagement strategies
- A bonus of 2 additional workshops in collaboration with Yenda Producers in 2014.
- Bonus promotion of campaign with DPI Citrus Gall Wasp Field Day x 2 in 2014.

Recommendations

1. Continuation of engagement at individual on-farm level is recommended in order to achieve further desired outcomes, as follows:

- The management of Queensland fruit fly at minimal to zero levels to achieve fruit fly free produce in required domestic and international markets. This is a long term strategy.
- Produce crops that are saleable and maintain Australia's 'fresh and clean' production image.
- Meet the Qfly educational needs of upcoming next generation growers (16% of grower survey respondents were within the 61 years or older bracket and 68% of grower survey respondents were in the 46-60 years of age bracket).
- Meet the Qfly educational needs of new growers into the industry
- Target 'abandoned' orchards

2. Continuation of engagement at broader community level at large is recommended in order to:

- Meet the Qfly educational needs of upcoming next generation backyard growers
- Meet the Qfly educational needs of new backyard growers

3. Further recommendation is that ongoing position funding support be provided to organisations such as Local Land Services that have the direct grower contact networks for on-farm liaison on behalf of industry.

4. Continued research into more economic and time effective Qfly management techniques tailored to the commercial horticulture grower.

5. Access by Riverina LLS to government funding to develop regional campaigns specific to targeting land managers such as NSW Rail, State Water, and RMS through collaboration of Regional Weeds Committees as a communication path. This is primarily due to many noxious weeds present on these (usually) lands are also Qfly host plants.

6. Given the ageing population within the horticulture industry in Riverina, it is recommended that some resources be allocated from peak horticulture industry bodies to assist in driving produce income higher to make it not only viable but also attractive for the next generation to stay on-farm. Barr (2014) reports in depth the research surrounding the negatively changing demographic structure of Australian farming with alarmingly less young farmers entering the industry. The report is of high concern as these changes may threaten Australian food production security or Australian agricultural productivity. This research was funded by the Rural Industries Research and Development Corporation (RIRDC) and is well worth reading.

Refereed Scientific Publications

Scientific Papers (See Appendix O for full text)

Dominiak, B. 2014. Evaluation of Cone and Lynfield traps at Yanco in autumn 2014.

Galvin, T., Mellberg, A., & Dominiak, B. 2015. Rose hips *Rosa sp.,* a new host for Queensland fruit fly *Bactrocera tryoni* (Froggatt) in south eastern Australia.

Intellectual Property/Commercialisation

No commercial IP generated.

References

Barr, N. (2014). New entrants to Australian agricultural industries –Where are the young farmers? *Publication No. 14/003.* Rural Industries Research and Development Corporation: Canberra, Australia.

Kruger, H. 2012. Biosecurity engagement guidelines: How to develop an engagement strategy including a monitoring and evaluation component. ABARES report prepared for Office of the Chief Plan Protection Officer, Department of Agriculture, Fisheries and Forestry, Canberra, December.

Roberts Evaluation 2006, Tools and Approaches for evaluating extension. http://www.robertsevaluation.com.au/images/tipsandtools/tools_evaluate_extension.pdf, accessed 9 February 2016.

Acknowledgements

A number of individuals and organisations have been directly supportive to the campaign coordinators. These are:

Mr Peter Davidson and the committee of Riverina Biosecurity Incorporated as well as the growers within Leeton, Griffith, Carrathool, Narrandera and Murrumbidgee shires.

Riverina LLS- Mr Ray Willis (Manager Biosecurity & Emergency Services), Mr Rob Kelly (General Manager Riverina LLS), Mrs Julie Busuttil (Team Leader-Native Vegetation), Mr Mike Dunn (Manager Land Services)

Ms Heleen Kruger- PhD candidate, School of Sociology Australian National University

DPI- Mr Daryl Cooper, Mr Wayne Norden, Dr Bernie Dominiak, Mr Lloyd Kingham, Mr Andrew Creek, Peter Gillespie, and Mr Satendra Kumar

Appendices

They are listed under cover headings of:

- Appendix A. Cost Benefit Report from a leading Packing Shed
- Appendix B. Grower Survey
- Appendix C. Grower Survey Results
- Appendix D. (Example) Letter to Councils regarding Qfly Management Guide in Rates Notices Collaboration with RBI
- Appendix E. (Example) Letter to Councils regarding Qfly Management Information on Website Collaboration with RBI
- Appendix F. (Example) Letter to Councils regarding Qfly Management Workshop Collaboration with RBI
- Appendix G. (Example) Letters to Land Owner/Manager re Qfly Host Plants
- Appendix H. (Example) Letters from Packer/Processors to Growers Requesting Qfly Baiting
- Appendix I. Riverina Biosecurity Incorporated Logo
- Appendix J. Newspaper Items
- Appendix K. General News
- Appendix L. Outputs-Riverina Fruit Fly Campaign
- Appendix M. Queensland Fruit Fly Management Guide-Commercial Growers
- Appendix N. Queensland Fruit Fly Management Guide-Backyard Growers
- Appendix O. Scientific Papers Associated with RFFC
- Appendix P. Visitors Centre Message to Visitors

Appendix A. Cost Benefit Report from a leading Packing Shed

Farm 549
Yanco Rd
PO Box 623
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Ph 61 2 69557117
Fax 61 2 69557120
Email: office@pacificfresh.com.au
Website: www.pacificfresh.com.au
ABN 11 003 274 191

7 April 2015

Pacific Fresh Fruit Fly Spray Program.

Pacific Fresh has 8 Shareholders that between them own 25 farms with a total of 1930 Acres. Of the 1930 acres 680 acres are Valencia's, 1050 acres are Navels, Mandarins, Grapefruit and 200 acres wine grapes.

In March 2011 Pacific Fresh employed a person (Chris Dunn) to do the fruit fly bait spraying on all the shareholders farms.

Pacific Fresh has supplied a Ute, Trailer, Kubota Mule and spray tank . Every season the bait spraying starts from September to the end of May.

We are currently using the Bugs for Bugs Lure and Sorcerer (abamectin) as the chemical. Currently we only spray Valencia's and Grapefruit during the spring and summer months and also do the early Navels in the autumn.

Spraying is done every 10 days in spring and weekly in summer and autumn.

Total costs for the grower is round $3 a tonne per year only for the chemical and Chris Dunn's work which Pacific Fresh charge the grower when the fruit delivered is paid for. We are not charging for the Vehicles.

The bait spraying program is defiantly working because all the growers have traps on their farms and trappings have been very low or sometimes none.

Pacific Fresh only takes Valencia fruit of growers that have a bait spraying program in place.

As a major Packing House in the MIA Pacific Fresh can't take the risk to pack fruit that possibly has maggots in it.

These days we don't get any government help so we have to do it ourselves because after all it is our fruit and if we have other pests like Fullers Rose Weevil we have to do the sprays.

I think the best way to get more growers spraying is for say 10 to15 growers get together and employ someone to do the spraying for them and that way it gets done. There are Vehicles available from Riverina Bio Security if that is the reason that growers aren't spraying

This season I've seen Valencia's fall on the ground from fruit fly damage and growers had to do a cover spray on their whole farms which I imagine is not cheap and also disrupts any IPM they have in place.

I can assure you that the growers that have a bait spraying program in place had no problems at all.

Regards,

Frank Mercuri

Chairman

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Email: frank@pacificfresh.com.au

Appendix B. Grower Survey

QFly Grower survey 2015 – The Riverina

Many thanks for your willingness to take part in the survey about how Queensland Fruit Fly (QFly) impacts you; what you think about different management methods; and how you view collaboration and support in this area.

1) What is you postcode? _____

2) Please rate the impact that QFly has had on your horticulture operation over the last 12 months.

	No impact	Low impact	Medium impact	High impact	Don't know
Produce quality	☐	☐	☐	☐	☐
Production cost due to the need for on-farm QFly management	☐	☐	☐	☐	☐
Ability to access markets	☐	☐	☐	☐	☐
Production cost due to the need for post-harvest treatments	☐	☐	☐	☐	☐

3) How important is the income you get from horticulture as part of your total household income?

☐ High - Most or all of our income comes from horticulture
☐ Medium - Horticulture income is important, but other income sources can sustain us
☐ Low - Horticulture makes a small or no contribution to our total household income
☐ Not applicable, e.g. I am a paid employee of the horticulture business

1

4) Which of the following statements best describe the future goals for your horticulture production?

☐ Grow some or all aspects of the horticulture operation
☐ Maintain the current horticulture operation as is
☐ Lessen dependence on horticulture production

Let's have a look at QFly management practices. We would like to know which ones you apply or have applied in the past. As well, we would like to know what you think about different practices in terms of their effectiveness, practicality and cost.

5) Which of the following QFly management activities have been applied in your horticulture operation (or part thereof), either currently or in the past?

☐ Protein baiting
☐ Male annihilation technique (MAT)
☐ Crop monitoring using traps
☐ Picking up fallen fruit
☐ Mulching fallen fruit
☐ None of these

6) Have you employed a crop consultant to assist you with QFly management during the last 12 months?

☐ Yes
☐ No

2

Appendix B. Grower Survey- continued .

7) Would you invest in contract spraying for QFly, if it was available?

- ☐ Yes, definitely
- ☐ Fairly likely
- ☐ Fairly unlikely
- ☐ No, definitely not

8) How do you prefer a contract spraying service to operate?

- ☐ The contractor is a packhouse employee and the payments for the service comes out of my delivered produce
- ☐ The contractor runs in conjunction with the packhouse and the payments for the service comes out of my delivered produce
- ☐ The contractor is independent from the packhouse and I pay the contractor directly
- ☐ I have no preference about how such scheme operates

3

9) What do you think about QFly trapping as part of monitoring QFly prevalence? Please rate the statements.

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
Trap monitoring is an effective way that assists in managing QFly	☐	☐	☐	☐	☐
I can easily fit in trap monitoring as part of other on-farm activities	☐	☐	☐	☐	☐
Trap monitoring makes little difference to on-farm cost	☐	☐	☐	☐	☐
I know how to do monitoring based on best recommended practice	☐	☐	☐	☐	☐

10) What do you think about in-field inspections for QFly prevalence? Please rate the statements.

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
In-field crop inspections are an effective way to prevent QFly damage	☐	☐	☐	☐	☐
I can easily fit in in-field crop inspections for QFly as part of other on-farm activities	☐	☐	☐	☐	☐
In-field crop inspections for QFly makes little difference to on-farm cost	☐	☐	☐	☐	☐

4

11) What do you think about bait spraying for QFly? Please rate the statements.

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
Bait spraying is an effective way of managing QFly	☐	☐	☐	☐	☐
I can easily fit in bait spraying as part of other on-farm activities	☐	☐	☐	☐	☐
Bait spraying makes little difference to on-farm cost	☐	☐	☐	☐	☐
Bait spraying causes no quality concerns to produce	☐	☐	☐	☐	☐
I know how to apply bait spray based on best recommended practice	☐	☐	☐	☐	☐

12) What do you think about Male Annihilation Technique (MAT) for QFly? Please rate the statements.

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
MAT is an effective way of managing QFly	☐	☐	☐	☐	☐
I can easily fit in applying MAT as part of other on-farm activities	☐	☐	☐	☐	☐
MAT makes little difference to on-farm cost	☐	☐	☐	☐	☐
I know how to apply MAT based on best recommended practice	☐	☐	☐	☐	☐
MAT distorts QFly trapping for monitoring	☐	☐	☐	☐	☐

5

13) What do you think about picking-up fallen fruit? Please rate the statements.

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
Picking-up fallen fruit is an effective way to prevent QFly proliferation	☐	☐	☐	☐	☐
I can easily fit in picking-up fruit as part of other on-farm activities	☐	☐	☐	☐	☐
Picking-up fruit makes little difference to on-farm cost	☐	☐	☐	☐	☐

14) What do you think about mulching fallen fruit into the soil? Please rate the statements.

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
Mulching fallen fruit into the soil is an effective way to prevent QFly proliferation	☐	☐	☐	☐	☐
I can easily fit in mulching fallen fruit into the soil as part of other on-farm activities	☐	☐	☐	☐	☐
Mulching fallen fruit into the soil makes little difference to on-farm cost	☐	☐	☐	☐	☐

6

15) This question has four components. Please answer in the table provided below.

a. List the horticulture crops grown for sale on your property during the last 12 months

b. Indicate the level of QFly management for each to prevent QFly infestation

(Note: The level of QFly management needed for each crop will depend on its susceptibility and growing season. Please base your answer in relation to the recommended best practice for the crop in your area. Here is a guide:

- Highest – You are applying recommended best practice. This typically involves weekly bait sprays, MAT, regular crop monitoring and orchard/crop sanitation
- Strong - You are doing a fair bit to manage QFly but not as much as for recommended best practice
- Some - You are doing some things to control QFly
- None - Nothing is done to prevent QFly
- Mostly cover sprays - Depended mostly on cover sprays to manage QFly
- NA - Crop not susceptible - Not applicable, the crop is grown in a season when QFly is not prevalent and/or QFly has little affinity for the crop

c. Crop damage during the last 12 months

d. Production area - Please estimate the area under production for each crop (you can use either hectares or acres)

	CROP *(write in)*	LEVEL OF QFLY MANAGEMENT						LEVEL OF QFLY DAMAGE				PRODUCTION AREA *(choose one unit)*	
												Acres	Ha
		Highest	Strong	Some	None	Mostly cover sprays	NA - Not susceptible	None	Low	High	Crop destroyed		
1.		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
2.		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
3.		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
4.		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		

	CROP *(write in)*	LEVEL OF QFLY MANAGEMENT						LEVEL OF QFLY DAMAGE				PRODUCTION AREA *(choose one unit)*	
												Acres	Ha
		Highest	Strong	Some	None	Mostly cover sprays	NA - Not susceptible	None	Low	High	Crop destroyed		
5.		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
6.		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
7.		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
8.		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		

16) Do you have other QFly host plants on your land including in your backyard or around sheds? This includes most fruit and vegetables, loquat trees, feijoas, etc.

☐ No

☐ Yes - What is the overall level of QFly management in the other host plants around your house and sheds?

- ☐ Highest
- ☐ Strong
- ☐ Some
- ☐ None
- ☐ Rely on cover sprays

17) Let's look at a view more of your views. How much do you agree with the following statements?

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
QFly infestation on nearby land makes it more difficult to manage QFly on my land	☐	☐	☐	☐	☐
I am actively involved in grower groups where the issue of QFly is discussed from time to time	☐	☐	☐	☐	☐
My level of on-farm profitability has no impact on my level of QFly control	☐	☐	☐	☐	☐
Other on-farm pressures have no impact on my level of QFly control	☐	☐	☐	☐	☐

Now we want to know what you think about other people, groups and organisations and their support for QFly management. In particular, do you think they know how to, want to and is able to do what is needed from them?

18) How much do you agree with these statements about full-time growers in your region?

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
All full-time horticulture growers know how to manage QFly	☐	☐	☐	☐	☐
All full-time horticulture growers are serious about managing QFly on their land	☐	☐	☐	☐	☐
All full-time horticulture growers are able to manage QFly on their properties, including having the needed money, time and equipment to get it done	☐	☐	☐	☐	☐

19) How much do you agree with these statements about part-time growers (such as people on smaller acreage blocks) in your region?

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
All part-time horticulture growers know how to manage QFly	☐	☐	☐	☐	☐
All part-time horticulture growers are serious about managing QFly on their properties	☐	☐	☐	☐	☐
All part-time horticulture growers are able of controlling QFly on their properties, including having the needed money, time and equipment to get it done	☐	☐	☐	☐	☐

20) How much do you agree with these statements about QFly pressure from towns.

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
QFly breeding in towns increases QFly pressure for horticulture farms in our region	☐	☐	☐	☐	☐
All town residents understand the QFly issues faced in our region	☐	☐	☐	☐	☐
Town residents will sufficiently manage QFly in their yards when there are regular education and awareness-raising activities	☐	☐	☐	☐	☐
QFly treatments on public land are an effective way of reducing QFly pressure in our region (such as baiting, trap monitoring and MAT blocks along town streets)	☐	☐	☐	☐	☐

21) How much do you agree with these statements about the Riverina Biosecurity Inc (RBI)?

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
RBI knows how to minimise QFly pressure in the Riverina	☐	☐	☐	☐	☐
RBI is serious about helping us to minimise QFly pressure in the Riverina	☐	☐	☐	☐	☐
RBI is capable of minimising QFly pressure in the Riverina (including having the needed funding, influence, etc.)	☐	☐	☐	☐	☐
I have a good understanding of what RBI does	☐	☐	☐	☐	☐

22) How much do you agree with these statements about your local council (local government)?

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
The Council knows how to minimise QFly pressure in our region	☐	☐	☐	☐	☐
The Council is serious about helping us to minimise QFly pressure in our region with the resources they have	☐	☐	☐	☐	☐
The Council is capable of minimising QFly pressure in our region (including the needed funding, influence, etc.)	☐	☐	☐	☐	☐
The Council knows how to minimise QFly pressure in our region	☐	☐	☐	☐	☐

11

23) How much do you agree with the statements below about the New South Wales Department of Primary Industries (NSWDPI)?

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
NSWDPI knows how to minimise QFly pressure in our region	☐	☐	☐	☐	☐
NSWDPI is serious about helping us to minimise QFly pressure with the resources they have	☐	☐	☐	☐	☐
NSWDPI is capable of supporting us to minimise QFly pressure (including having the needed staff, funding, etc.)	☐	☐	☐	☐	☐
NSWDPI is helping us to help ourselves to overcome our QFly problems	☐	☐	☐	☐	☐

24) How much do you agree with the statements below about the Local Land Services?

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
LLS knows how to minimise QFly pressure in our region	☐	☐	☐	☐	☐
LLS is serious about helping us to minimise QFly pressure with the resources they have	☐	☐	☐	☐	☐
LLS is capable of supporting us to minimise QFly pressure (including having the needed staff, funding, etc.)	☐	☐	☐	☐	☐
LLS is helping us to help ourselves to overcome our QFly problems	☐	☐	☐	☐	☐

12

25) Who do you believe is the most appropriate group for overseeing on-ground QFly control in your region?

- ☐ Government, the issue is beyond the control of industry
- ☐ Government and industry, but government with all its powers need to take the lead
- ☐ Industry and government, but industry as the most affected party needs to take the lead
- ☐ The horticulture growers impacted by QFly

Let's talk about QFly and market access ...

26) Are you, or are you interested in, supplying citrus to QFly-sensitive markets?

- ☐ Yes
- ☐ No – *Please skip to question 32 on p16.*

27) How much do you agree with the following statements?

Note: Area-wide management refers to coordinated pest management across a region, including on farmland and in towns.

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
I understand what is meant by using a systems approach for market access	☐	☐	☐	☐	☐
I understand what an 'Area of Low Pest Prevalence' means in the context of market access	☐	☐	☐	☐	☐
Area-wide management is the way of the future to manage QFly	☐	☐	☐	☐	☐
An 'area of low pest prevalence' is valuable in negotiating domestic market access as part of a systems approach	☐	☐	☐	☐	☐
An 'area of low pest prevalence' is valuable in negotiating international market access as part of a systems approach	☐	☐	☐	☐	☐

28) How much do you agree with these statements about the role of Riverina Biosecurity Inc (RBI) in strengthening market access?

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
RBI understands the QFly–related issues that hinder our market access	☐	☐	☐	☐	☐
RBI is serious about helping growers overcome QFly-related barriers to market access	☐	☐	☐	☐	☐
RBI is capable of making a significant difference to reducing QFly-related barriers to market access (including working with the right government people)	☐	☐	☐	☐	☐

29) How much do you agree with these statements about Citrus Australia?

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
Citrus Australia understands our QFly–related issues that hinder market access	☐	☐	☐	☐	☐
Citrus Australia is serious about helping our local industry overcome the QFly – related issues that hinder market access	☐	☐	☐	☐	☐
Citrus Australia is capable of supporting our local industry to overcome the QFly–related issues that hinder market access?	☐	☐	☐	☐	☐

30) How much do you agree with these statements about NSWDPI?

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
NSWDPI understands our QFly–related issues that hinder market access	☐	☐	☐	☐	☐
NSWDPI is serious about helping our local industry overcome the QFly–related issues that hinder market access	☐	☐	☐	☐	☐
NSWDPI is capable of supporting our local industry to overcome the QFly–related issues that hinder market access	☐	☐	☐	☐	☐

31) How much do you agree with these statements about the Australian Government Department of Agriculture (DoA) in Canberra?

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know
DoA understands our QFly–related issues that hinder our overseas market access	☐	☐	☐	☐	☐
DoA is serious about helping our local industry overcome the QFly–related issues that hinder overseas market access	☐	☐	☐	☐	☐
DoA is capable of supporting our local industry to overcome the QFly–related issues that hinder overseas market access	☐	☐	☐	☐	☐

About your information sources for QFly management...

32) Where did you learn about QFly? Please mark your top two sources.

- ☐ DPI officers
- ☐ Grower meetings
- ☐ Fellow growers
- ☐ Internet searches
- ☐ DPI Print material
- ☐ Other print material
- ☐ Chemical company

....Please turn over....

- ☐ Private consultant
- ☐ Pesticide supply store
- ☐ The recent fruit fly campaign by RBI/LLS
- ☐ The Fruit Fly Coordinator (Tammy Galvin)
- ☐ Other - Write In: _____

33) If you had QFly-related questions now, where would you look for information? Mark your top two sources.

- ☐ NSW DPI officers
- ☐ Grower meetings
- ☐ Fellow growers
- ☐ Internet searches
- ☐ NSW DPI Print material
- ☐ Other print material
- ☐ Chemical company
- ☐ Private consultant
- ☐ Pesticide supply store
- ☐ Local Land Services
- ☐ Riverina Biosecurity Inc. member
- ☐ The Fruit Fly Coordinator (Tammy Galvin)
- ☐ Other - Write In: _____

17

A bit more about yourself...

34) What is your highest level of formal education?

- ☐ Primary school
- ☐ Part secondary school
- ☐ Secondary school
- ☐ Trade/technical certificate
- ☐ Diploma/Associate diploma
- ☐ Degree
- ☐ Postgraduate

35) How old are you?

- ☐ 18-30 years
- ☐ 31-45 years
- ☐ 46-60 years
- ☐ 61 years and older

36) Do you have any other remarks you would like us to be aware off?

_____

_____

_____

18

Thank you for taking our survey. Your response is very important to us.

19

Appendix C. Grower Survey Results

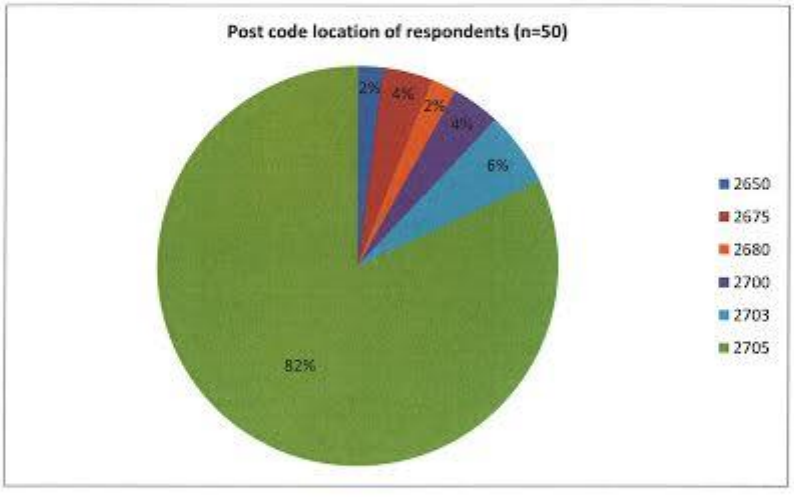
Riverina (Leeton & Carrathool only) grower QFly survey (November 2015) – Summary of findings

12 February 2016

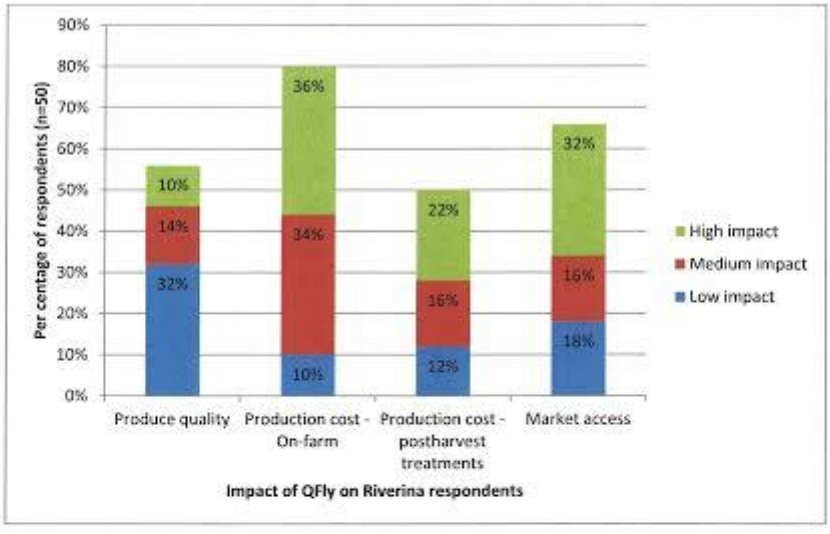
Heleen Kruger
PhD Candidate
Plant Biosecurity CRC

Participation
98 businesses had the opportunity to participate, 50 completed it, i.e. 51 % response rate, although not everyone completed each question

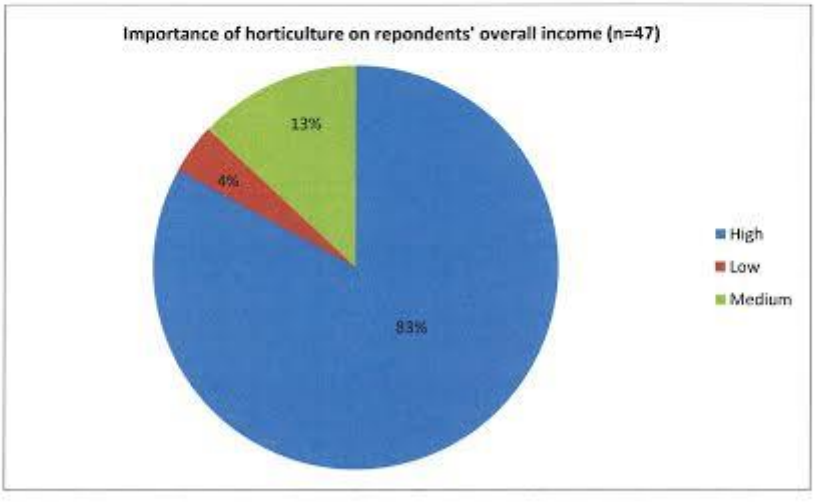
1) Post code location of respondents



2) Riverina respondents' self-reported impact of QFly on respondents' horticulture operations

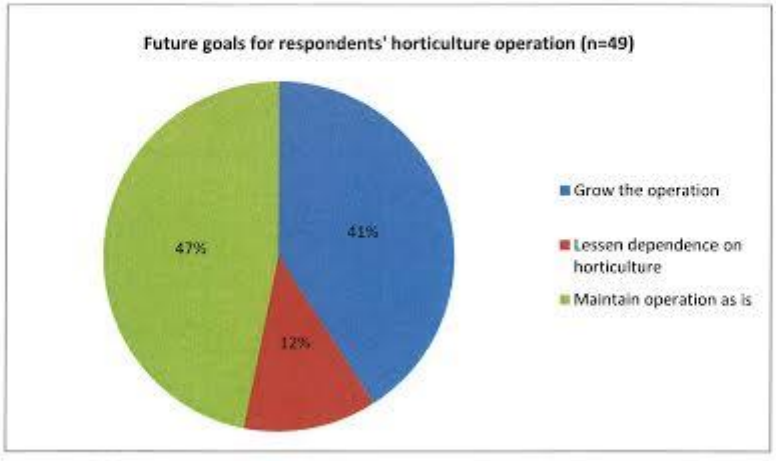


3) Importance of horticulture as part of household income

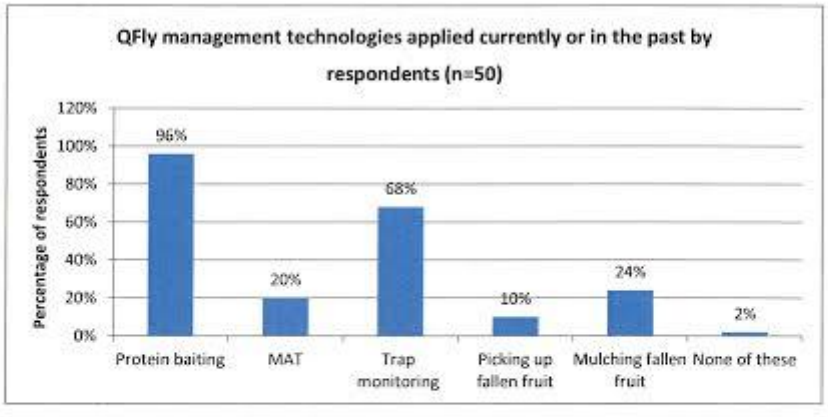


2

4) Future goals for respondents' horticulture operation

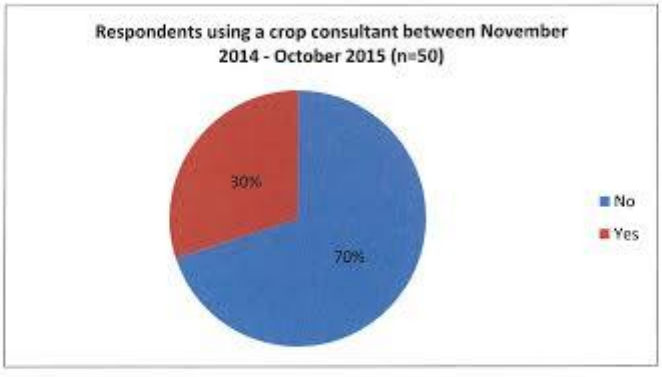


5) QFly management activities applied in respondents' horticulture operation

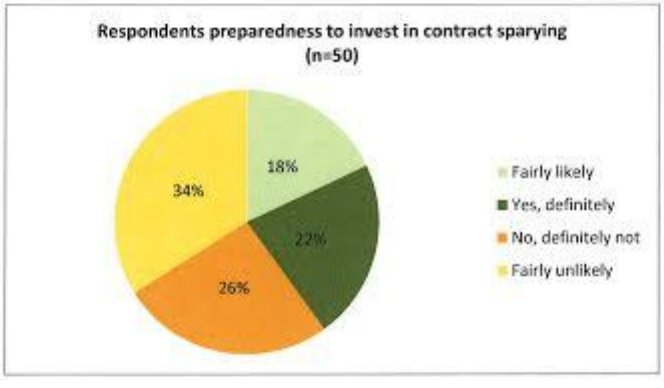


3

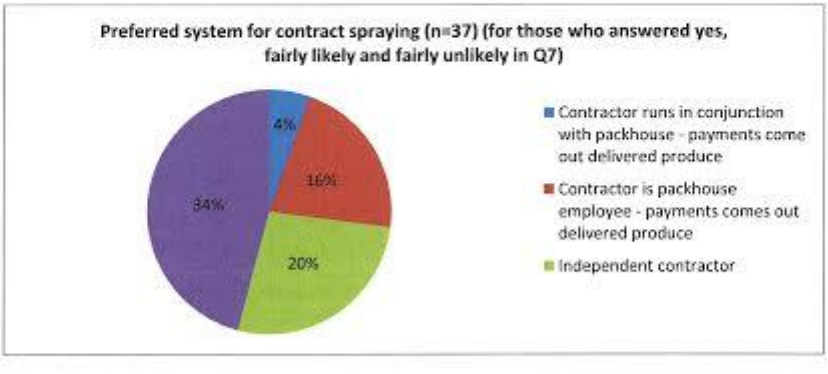
6) Employment of crop consultants



7) Respondents willingness to invest in contract spraying



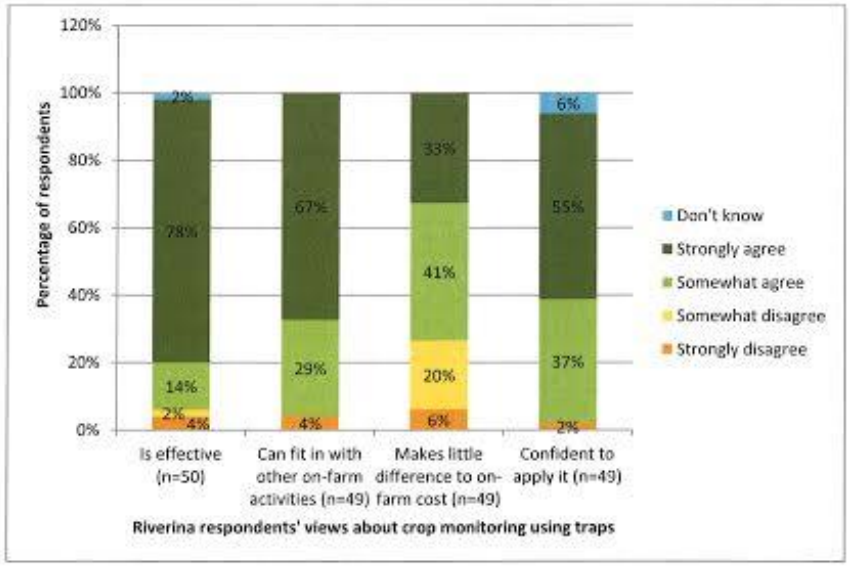
8) Preferred system for contract spraying



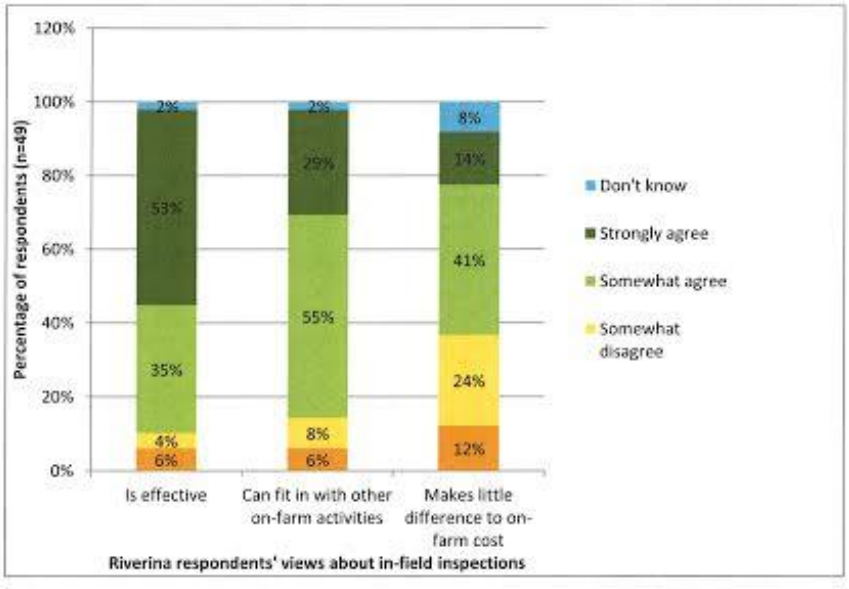
4

Respondents' views of different QFly management technologies

9) Respondents' views about QFly trapping as part of monitoring QFly prevalence

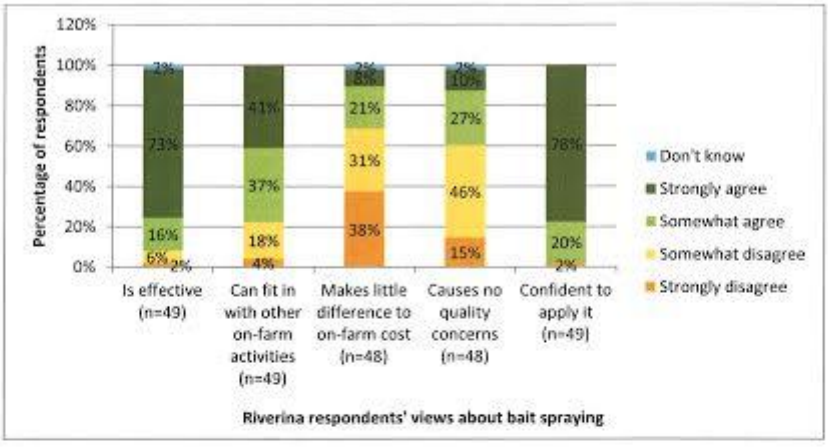


10) Respondents' views about in-field inspections

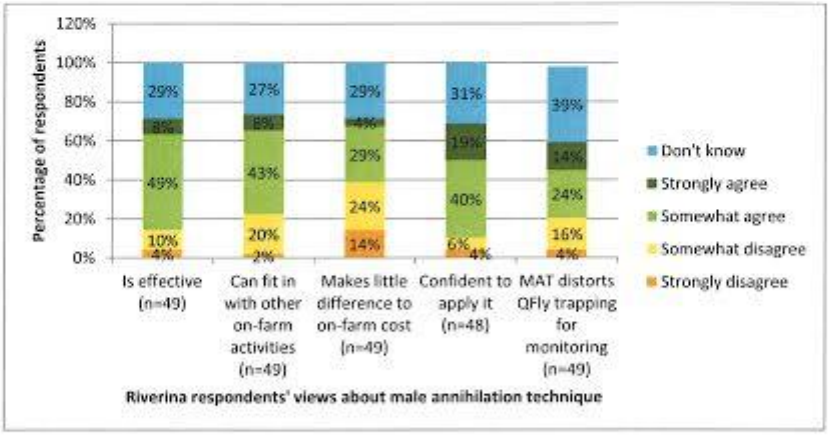


5

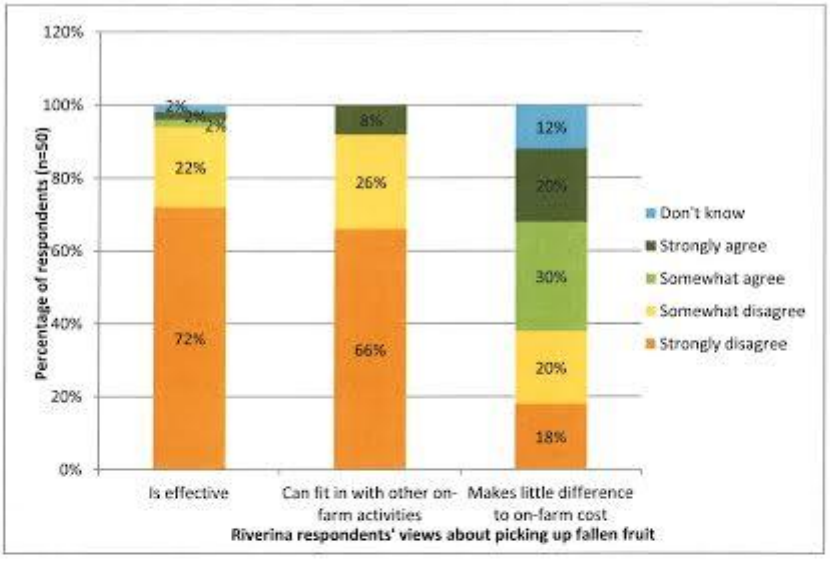
11) Respondents' views about bait spraying



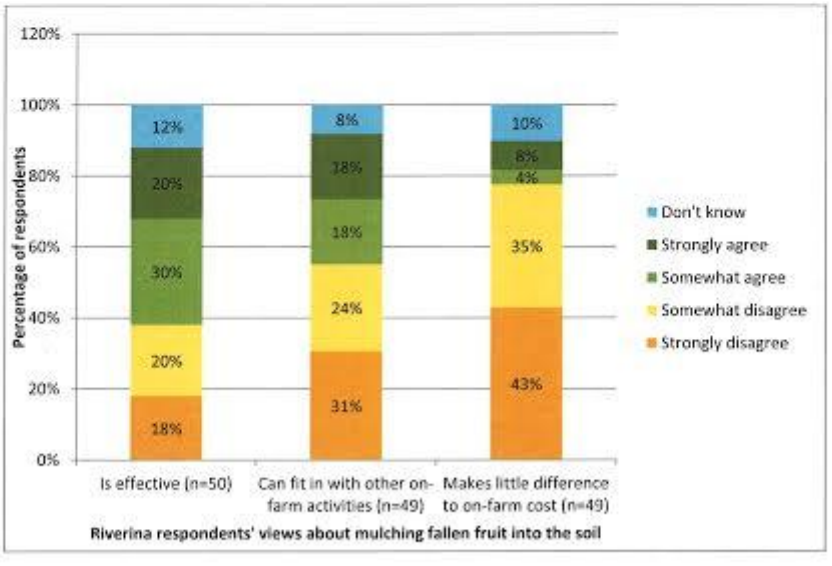
12) Respondents' views about male annihilation technique



13) Respondents' views about picking up fallen fruit



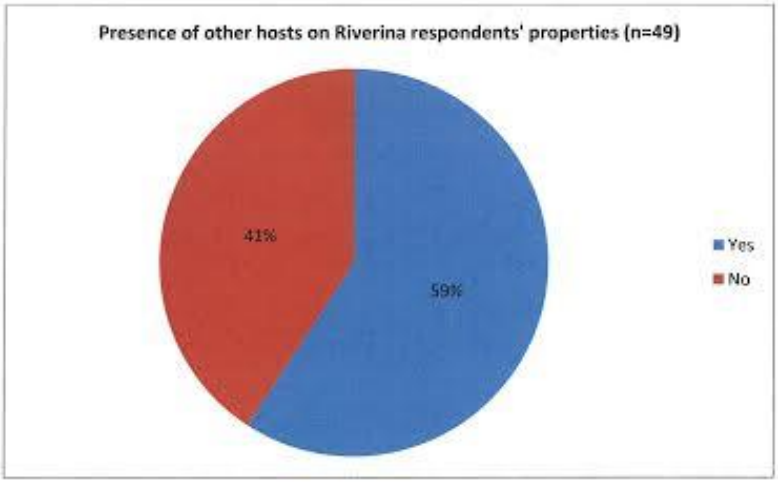
14) Respondents' views about mulching fallen fruit into the soil



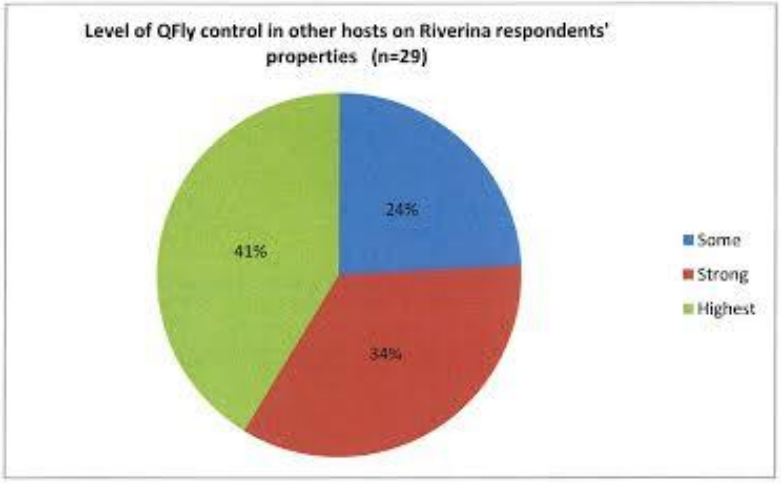
7

Management of other QFly hosts on respondents' properties

16.1) Presence of other hosts on Respondents' properties



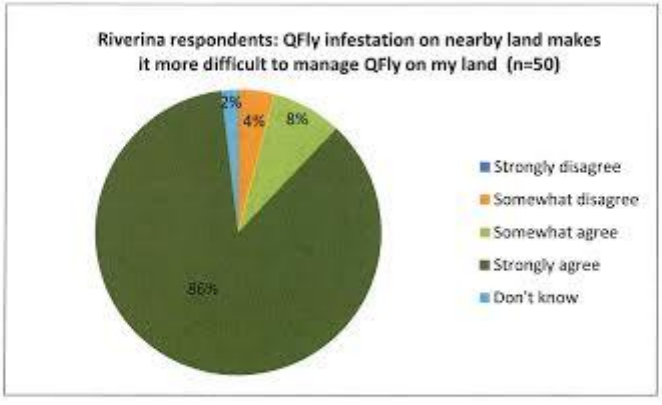
16.2) Level of QFly control of other hosts on Respondents' properties

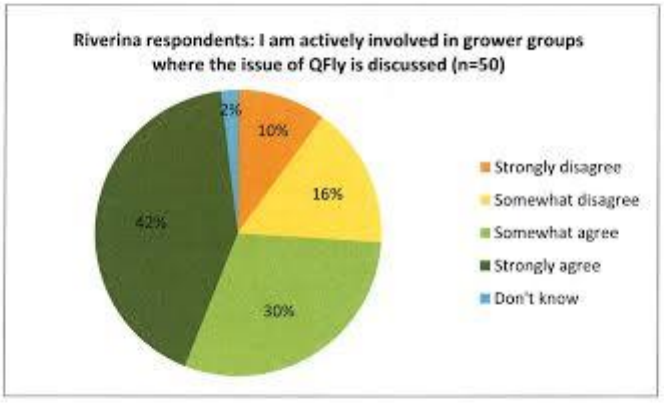


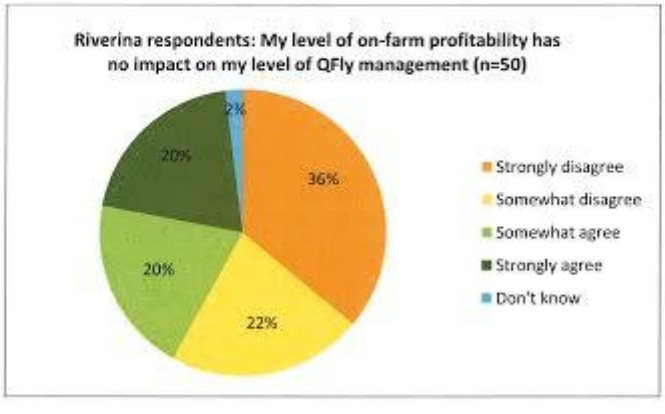
- Highest – You are applying recommended best practice. This typically involves weekly bait sprays, MAT, regular crop monitoring and orchard/crop sanitation
- Strong - You are doing a fair bit to manage QFly but not as much as for recommended best practice
- Some - You are doing some things to control QFly
- None - Nothing is done to prevent QFly

8

17) Respondents' views about their on-farm QFly management







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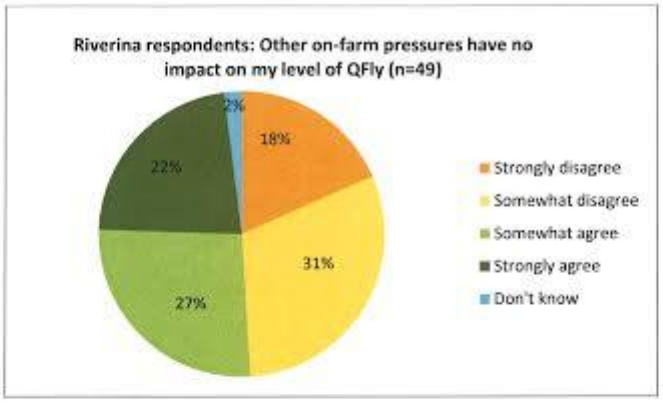
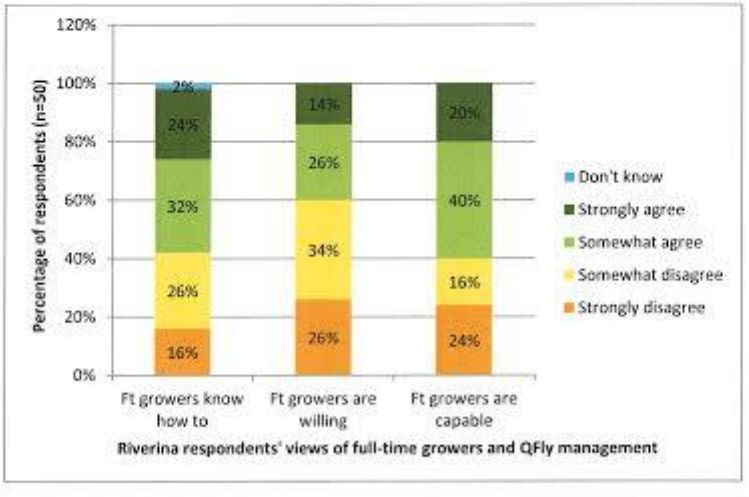


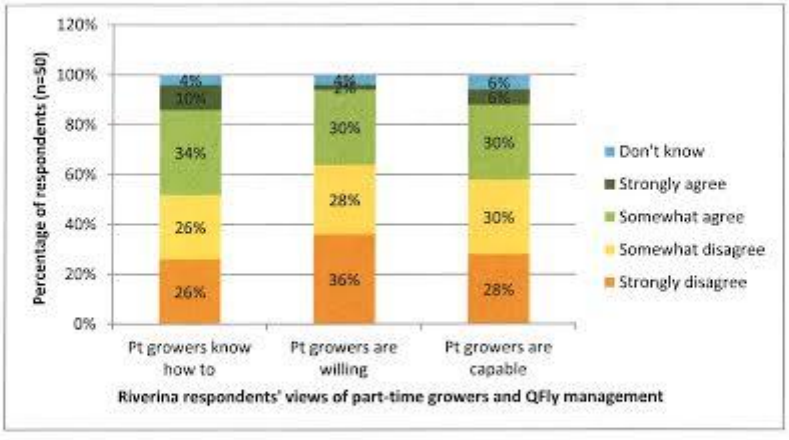
Respondents' views about other groups' and organisations' support for QFly management

18) Respondents views about other full-time Respondents and their QFly management

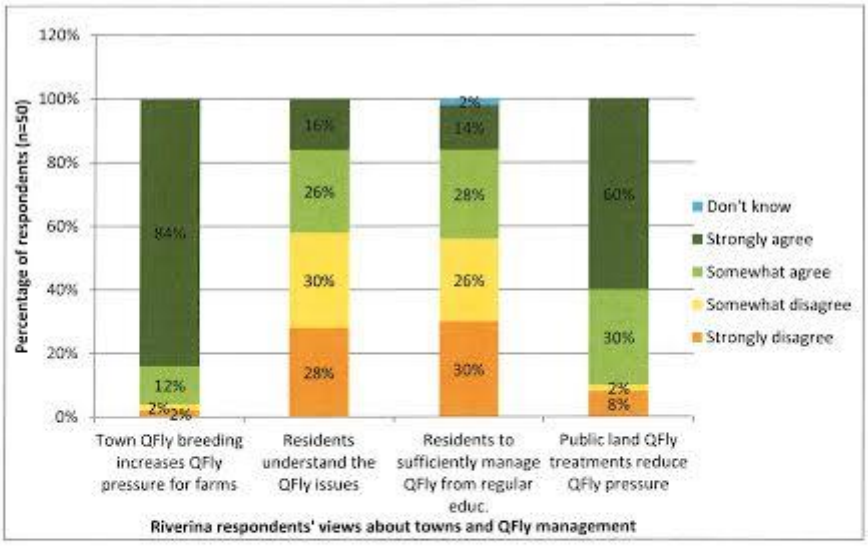


10

19) Respondents views about other part-time Respondents and their QFly management

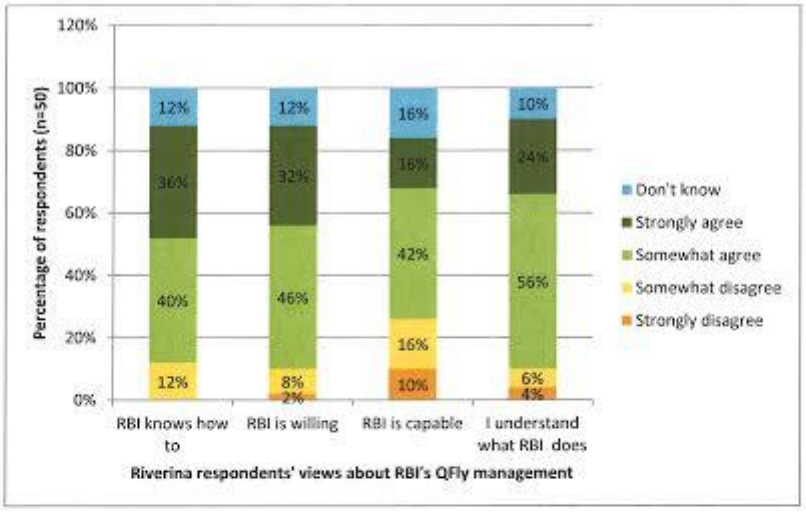


20) Respondents' views of QFly management in towns

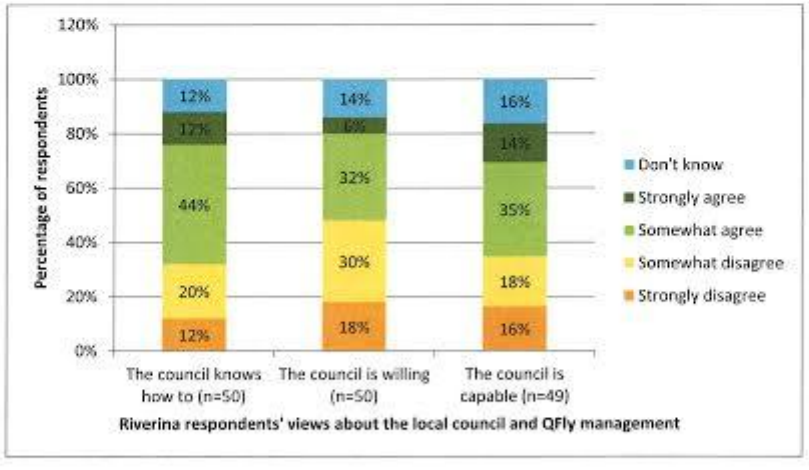


11

21) Respondents' views about the Management Groups' support for QFly management

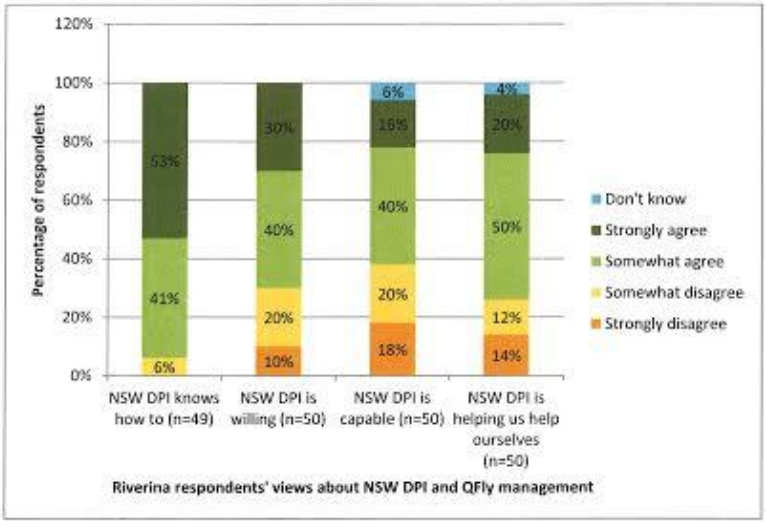


22) Respondents' views about the Local Council's support for QFly management

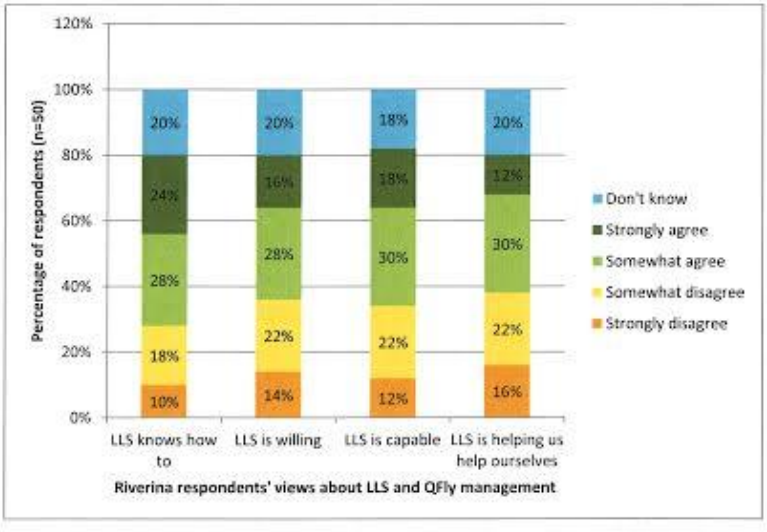


12

23) Respondents' views about the NSW DPI's support for QFly management

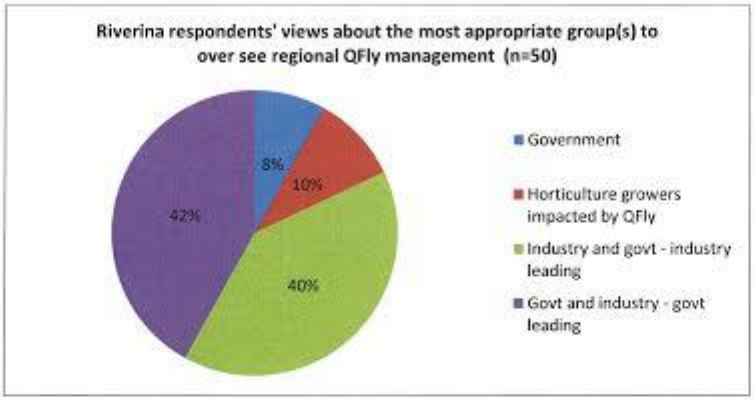


24) Respondents' views about the Local Land Services' support for QFly management

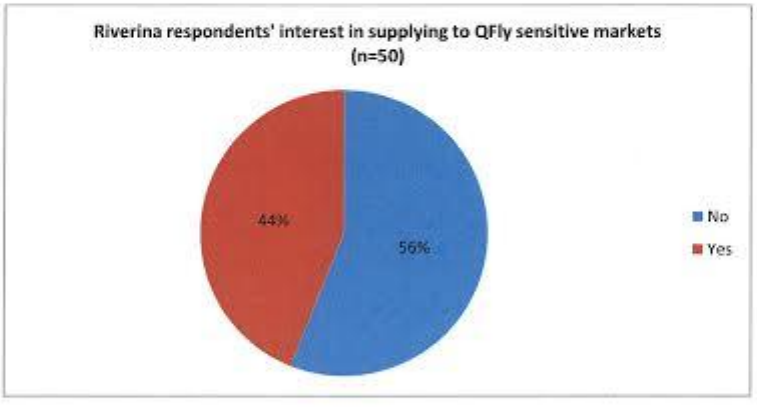


13

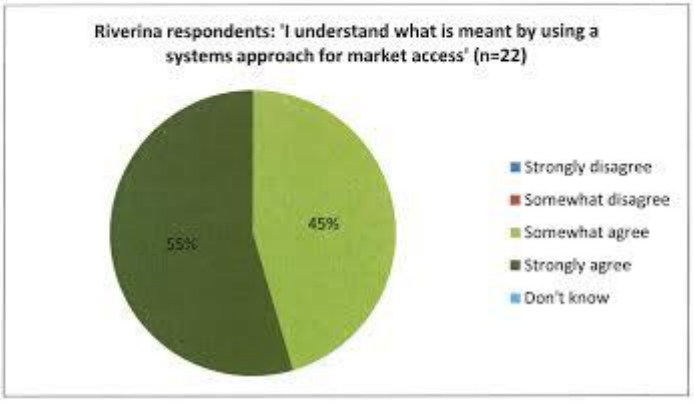
25) Respondents' views about the most appropriate group(s) for overseeing regional QFly management

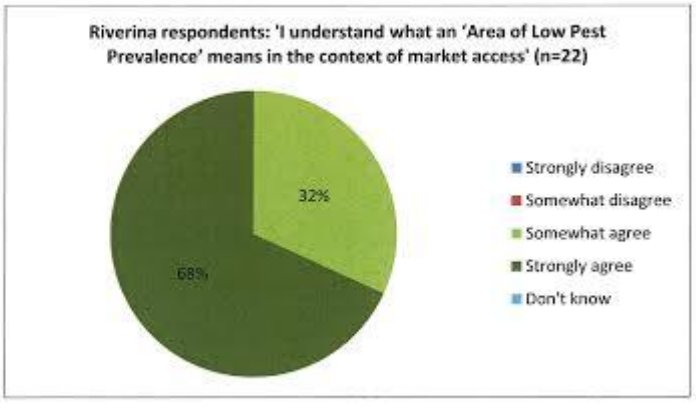


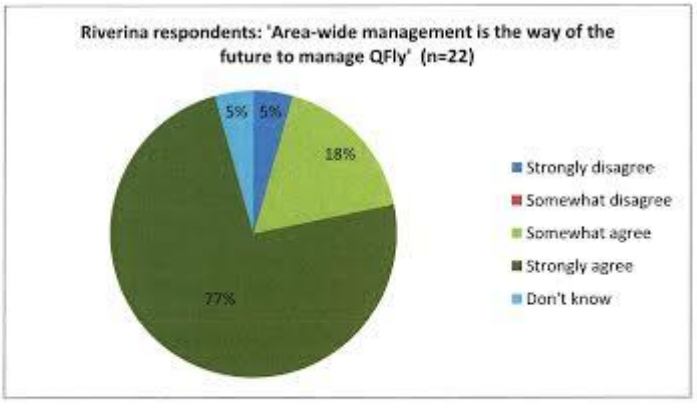
26) Respondents' interest in supply to QFly-sensitive markets



27) Understanding of AWM, area of low pest prevalence and systems approaches







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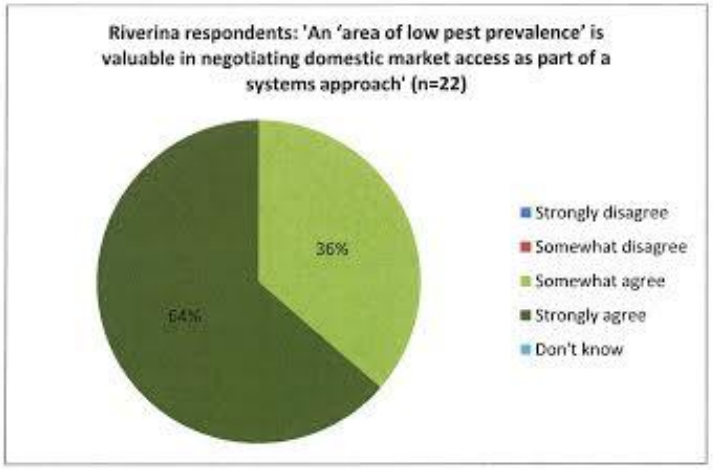
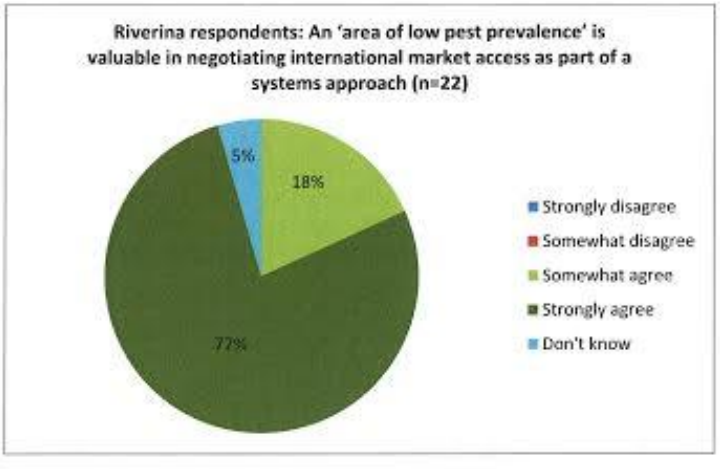
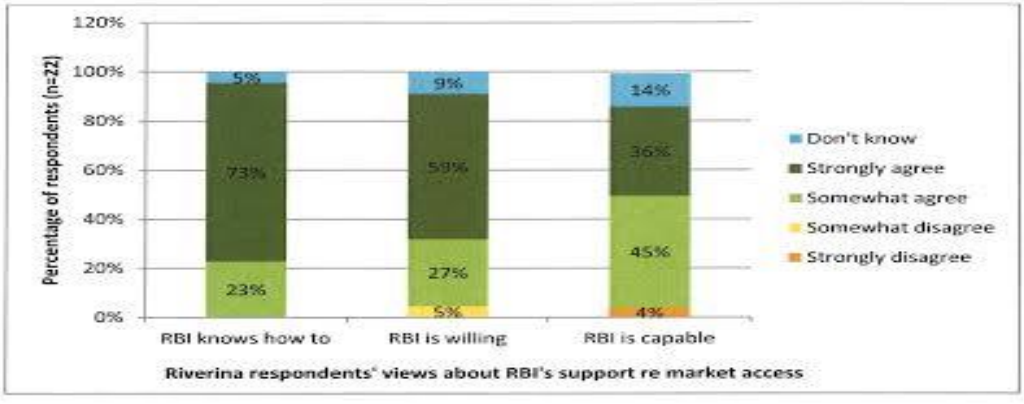
Appendix C. Grower Survey Results- continued





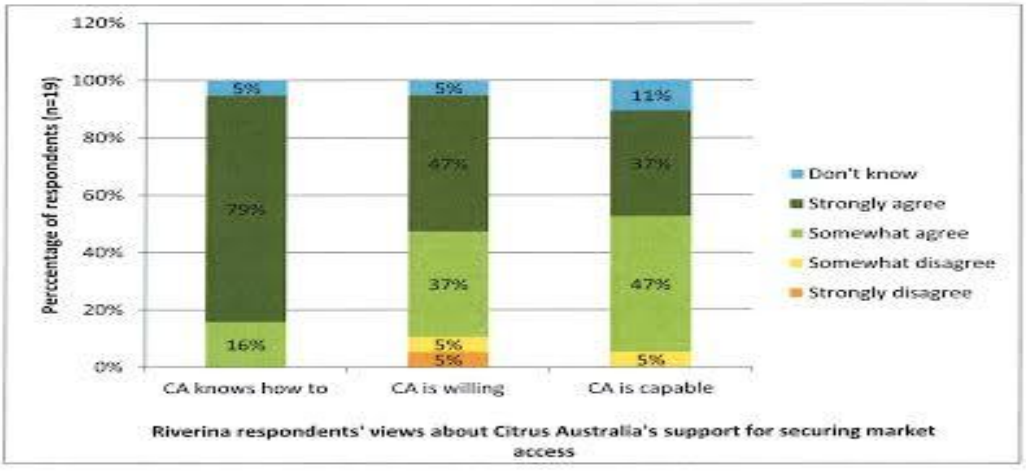
Views about different groups providing support in relation to market access

28) Respondents' views about the Management Group's support for securing market access



Riverina respondents' views about RBI's support re market access

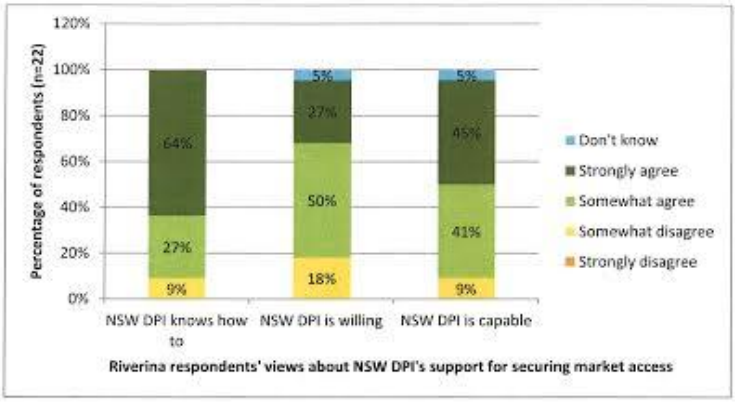
29) Respondents' views about peak industry body's support for securing market access



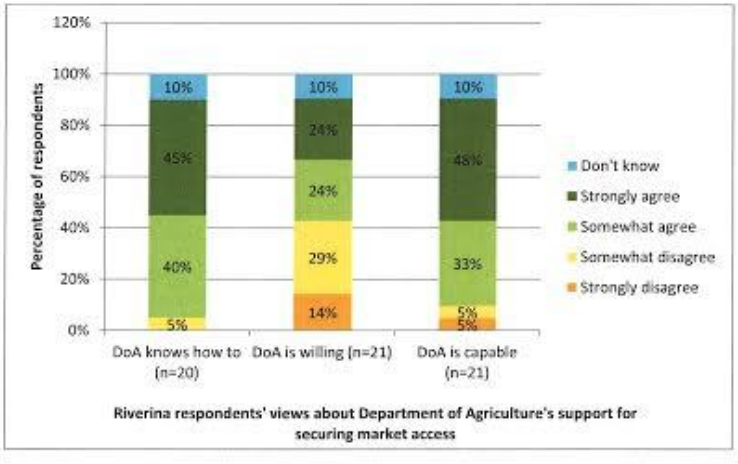
Riverina respondents' views about Citrus Australia's support for securing market access

17

30) Respondents' views about NSW DPI's support for securing market access

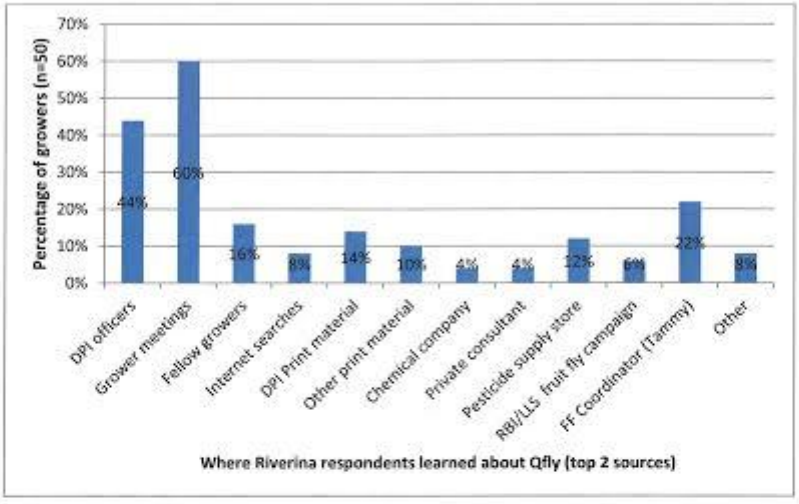


31) Respondents' views about Australian Department of Agriculture's support for securing market access

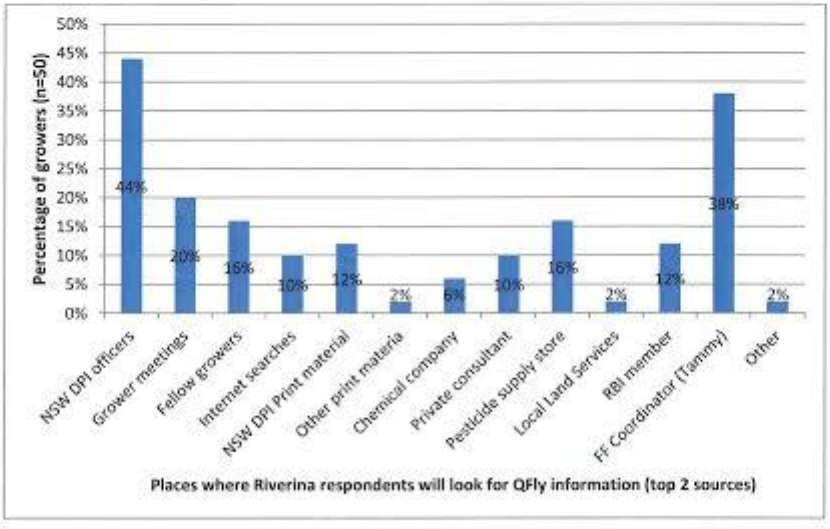


Information sources

32) Information sources through which respondents learned about QFly



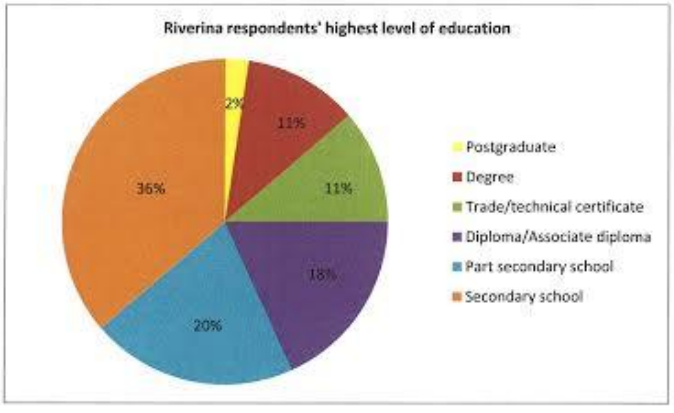
33) Information sources where respondents would look for QFly-related information



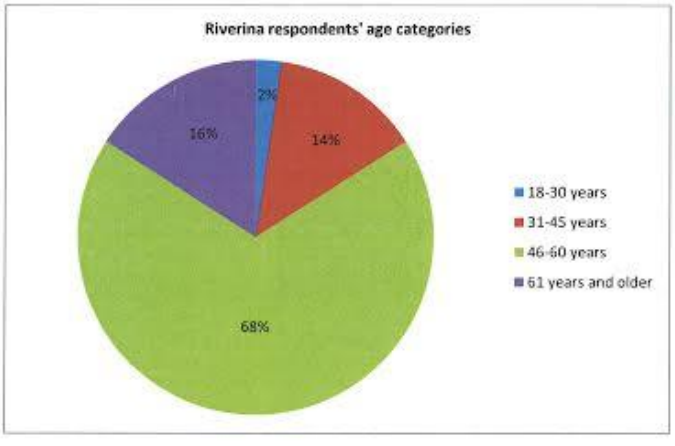
19

Riverina respondents demographic information

30) Respondents' highest level of education



31) Respondents' age categories



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Appendix D. (Example) Letter to Councils regarding Qfly Management Guide in Rates Notices Collaboration with RBI

Riverina Biosecurity Inc.

18th March 2014

«AddressBlock»
«AddressBlock»
«AddressBlock»
«AddressBlock»

RE: *Possibility of Riverina Fruit Fly Campaign Management Guide in XX Council's Rates Notices*

Dear XX,

I am writing to you formally to request permission for Riverina Biosecurity Incorporated to have a Fruit Fly Management Guide included in XX Council's rates notices.

As the Riverina shires of Griffith, Leeton, Narrandera, Carrathool and Murrumbidgee no longer experience freedom from Queensland fruit fly (QFF) there is now a greater need for a major culture change where everyone becomes involved in fruit fly control. This includes all backyard fruit and vegetable growers as well as commercial fruit and vegetable growers. This is what the Riverina Fruit Fly Campaign seeks to achieve through educating all of community to accept and understand that it is a community problem where we must all do our bit.

I will also be working with growers, packhouses and processers, nurseries, agricultural product retailers and real estate property managers to cast greater understanding out the community on the responsibilities of fruit fly control to protect the Riverina's horticultural industry.

The campaign will be more successful if Riverina Biosecurity and all applicable councils and other stakeholders can collaborate in the community education of fruit fly control.

I am contactable on the details below.

Yours sincerely,

Tammy Galvin
Riverina Fruit Fly Campaign Coordinator
Chelmsford Place,
LEETON NSW 2705
P: 02 6953 0723
M: 0427 221 651
E: tammy.galvin@lls.nsw.gov.au

Appendix E. (Example) Letter to Councils regarding Qfly Management Information on Website Collaboration with RBI

Riverina Biosecurity Inc.

18th March 2014

«AddressBlock»
«AddressBlock»
«AddressBlock»
«AddressBlock»

RE: *Possibility of Riverina Fruit Fly Campaign Monthly Newsletter on XX Council Website*

Dear XX,

I am writing to you formally to request permission for Riverina Biosecurity Incorporated to have a monthly newsletter placed on XX Council's website on a monthly basis.

As the Riverina shires of Leeton, Narrandera, Griffith, Carrathool and Murrumbidgee no longer experience freedom from Queensland fruit fly (QFF) there is now a greater need for a major culture change where everyone becomes involved in fruit fly control. This includes all backyard fruit and vegetable growers as well as commercial fruit and vegetable growers. This is what the Riverina Fruit Fly Campaign seeks to achieve through educating all of community to accept and understand that it is a community problem where we must all do our bit.

The campaign will be more successful if Riverina Biosecurity and all applicable councils can collaborate in the community education of fruit fly control.

I am contactable on the details below.

Yours sincerely,

Tammy Galvin
Riverina Fruit Fly Campaign Coordinator
Chelmsford Place,
LEETON NSW 2705
P: 02 6953 0723
M: 0427 221 651
E: tammy.galvin@lls.nsw.gov.au

Riverina Biosecurity Incorporated
PO Box 156
LEETON NSW 2705
P: 02 6953 0723
M: 0427 221 651
E: tammy.galvin@lls.nsw.gov.au

Page 1

Appendix F. (Example) Letter to Councils regarding Qfly Management Workshop Collaboration with RBI

Riverina Biosecurity Inc.

5th May 2014

«AddressBlock»
«AddressBlock»
«AddressBlock»
«AddressBlock»

RE: *Collaboration between Riverina Biosecurity Incorporated (RBI) & XX Council in delivering Fruit Fly Management Workshops in 2014*

Dear XXXXX,

I am writing to you formally to suggest a collaborative partnership between Riverina Biosecurity Incorporated (RBI) and XX Council in tackling the biosecurity issue of Queensland fruit fly management within XX LGA.

I have commenced meeting with the five councils covered by the campaign and would like to take the opportunity to meet with you and applicable staff to discuss ways in which RBI and XX Council could collaborate in delivering a highly successful Riverina Fruit Fly Campaign.

Suggested ways in which RBI and XX Council could collaborate are:

- Funding contribution from RBI and, if possible, from XX Council to run Fruit Fly Management Workshops for all rate payers over Winter 2014, and/or
- Provision of a venue for the above mentioned workshops, and/or
- Contribution to catering for the above mentioned workshops, and/or
- Contribution towards printing costs of Fruit Fly Management Guide Kits to distribute
- Removal of feral fruit trees on XX Council owned land (I believe this already occurs?).

I am contactable on the details below.

Yours sincerely,

Tammy Galvin
Riverina Fruit Fly Campaign Coordinator
Chelmsford Place,
LEETON NSW 2705
P: 02 6953 0723
M: 0427 221 651
E: tammy.galvin@lls.nsw.gov.au

Appendix G. (Example) Letters to Land Owner/Manager re Qfly Host Plants

QUEENSLAND FRUIT FLY HOST PLANTS
in RENTAL PROPERTY YARDS

Dear Landlord/or Tenant (*select one*),

Queensland fruit fly is a serious pest to the horticulture industry of the Riverina. There is a great deal of Queensland fruit fly pressure from residential areas that have susceptible Queensland fruit fly host plants in yards.

To help the growers protect the industry it is vital that residential rental properties that have susceptible Queensland fruit fly host plants be treated with correct Queensland fruit fly management products on a weekly basis. This must be addressed to remove unnecessary threat to the Riverina horticulture industry.

If treating susceptible Queensland fruit fly host plants is not possible for landlords on a weekly to ten day basis then it is advised that these trees/plants be removed and dispose of correctly at your local garbage depot.

The accompanying Queensland Fruit Fly-Backyard Management Guide provides all Queensland fruit fly weekly management information. In addition, a Queensland fruit fly Host List is enclosed for susceptible host identification.

For further information, please contact the Riverina Fruit Fly Campaign Coordinator on 02 69530 723; e: tammy.galvin@lls.nsw.gov.au ; or postal address: PO Box 156, Leeton NSW 2705.

Yours Sincerely,

Tammy Galvin

Riverina Biosecurity Inc.

«AddressBlock»
«AddressBlock»
«AddressBlock»
«AddressBlock»

Your Responsibility to Control Queensland Fruit Fly on Your Property at XXX

Dear XX,

As you should be aware by now, the Riverina areas of Leeton Shire Council, Carrathool Shire Council, Narrandera Shire Council, Murrumbidgee Shire Council, and Griffith City Council are no longer a Pest Free Area (PFA) for Queensland fruit fly. The PFA was deregulated in 2012. What this means is that the Government no longer carries out the Queensland fruit fly control on your property. It is your responsibility.

A management guide for backyard Queensland fruit fly management was included in the Leeton rates notices recently. If you did not read this guide and have discarded it, another is included for convenience.

A loquat tree has been identified on your rental property. Loquats are a highly susceptible Queensland fruit fly host. As we are coming into the fruit fly season with the weather warming up you will need to either:

a) Remove the loquat tree if you cannot make the time to look after it by routine bait spraying (with protein bait and registered chemical) every 10 days in the fruit fly seasons. If you cannot remove the tree yourself then you can hire a tree maintenance person to remove it for you.

b) Bait spray with registered applicable chemical and protein bait applied to the trunk or foliage of the tree every 10 days routinely.

The enclosed Queensland Fruit Fly Backyard Management Guide provides you with further detail on managing Queensland fruit fly. There is also a Queensland fruit fly management workshop that will be run at Leeton on Wednesday 10th September and Thursday 11th September 2014. You will learn everything that is required to manage Queensland fruit fly by attending one of these workshops.

Ring the Riverina Fruit Fly Campaign Coordinator, Tammy Galvin, on 69530723 or 0427221651 to book in for one of these workshops.

Sincerely,

Tammy Galvin
Riverina Fruit Fly Campaign Coordinator
P: 6953 0723
M: 0427 221 651
E: riverinabiosecurity@hotmail.com

Riverina Biosecurity Incorporated
PO Box 156
LEETON NSW 2705

Page 1

Appendix H. (Example) Letters from Packer/Processors to Growers Requesting Qfly Baiting

Insert packer header

(Insert Date)

Queensland Fruit fly Management

Dear Growers,

Queensland Fruit fly is serious pest, affecting growers in the Riverina Citrus Industry.

In light of recent high trapping numbers and growers reporting stinging and drop of fruit, we must be vigilant in controlling the pest in the lead up to the Navel season.

The current outbreak if not properly controlled will have the potential to sting Navels and early Mandarins during their next life cycle.

If fruit fly larvae are found in fruit then we cannot take your fruit.

We urge you to put some Fruit Fly Traps in your orchards, typically 1 trap per 2 Hectares and monitor frequently. When you bait spray, record it in your spray diary and have an invoice as proof of chemical purchase for auditing purposes.

It has been proven that growers who bait spray weekly have success in managing fruit fly and do not lose crops.

If the supermarkets were to find fruit fly larvae in our fruit they are likely to source citrus from other regions. We cannot risk fruit reaching consumers with larvae inside as this would put the whole industry in a difficult situation and potentially have a devastating effect on all Riverina growers.

We need all growers to start baiting immediately and continue on a weekly basis.

Yours Sincerely,

Appendix H. (Example) Letters from Packer/Processors to Growers Requesting Qfly Baiting- continued.

Insert packer header

(Insert Date)

URGENT ACTION REQUIRED for Queensland Fruit fly Management

Dear Growers,

Queensland Fruit fly is seriously affecting growers in the Riverina Citrus Industry.

It has been proven that growers who bait spray weekly have success in managing fruit fly and do not lose crops.

If fruit fly larvae are found in fruit then we cannot take your fruit. When you bait spray, record it in your spray diary and have an invoice as proof of chemical purchase for auditing purposes.

If the supermarkets were to find fruit fly larvae in our fruit they are likely to source citrus from other regions. We cannot risk fruit reaching consumers with larvae inside as this would put the whole industry in a difficult situation and potentially have a devastating effect on all Riverina growers.

We need all growers to start baiting immediately and continue on a weekly basis.

Yours Sincerely,

Insert packer header

(Insert Date)

Fruit fly management 2012-2013 season

Dear Growers,

Fruit fly has potential to seriously affect the Citrus Industry in the Riverina. NSW DPI trap data is currently indicating that fruit fly numbers are starting to increase in some districts. We need to tackle this situation ourselves, not blame others for having fruit fly. In Queensland growers bait every week and have had success in controlling fruit fly. Queensland growers have proven an area wide approach to fruit fly management works. Locally we too can minimise fruit fly in the same way that Queensland has.

Currently susceptible blocks should be baited weekly. Local growers who have been bait spraying their farms on a weekly basis have already seen good results with fewer or no flies being trapped every week.

We need all growers to start baiting immediately and continue on a weekly basis. Packing sheds cannot guarantee we will be able to take your fruit this coming season unless you bait spray, record it in your spray diary and have an invoice as proof of chemical purchase.

Appendix I. Riverina Biosecurity Incorporated Logo

Riverina Biosecurity Incorporated

Appendix J. Newspaper Items

MEDIA RELEASE

2.10.15

UPCOMING GROWER SURVEY TO UNDERSTAND THE QFLY CHALLENGE FROM THE LOCAL PERSPECTIVE

Queensland fruit fly (QFly) is a major concern to horticulture growers due to its impact on both production and market access. Riverina Biosecurity Inc. and Local Land Services have led a campaign for more than a year now to bring growers and town residents up to speed about how to deal with this pest. This follows major changes in recent years such as the restricted the two key chemicals traditional used to control this pest, that is fenthion and dimethoate. There is also less on-ground support from NSW DPI than there used to be in the past to carry out pest control activities.

There are several forums at national level where government and industry body representatives try to identify how Australia can best deal with the QFly challenge and its impact on market access. However, little is formally understood about how growers perceive current recommended best practices and market access application processes. Little is also known in these times of change about how growers perceive other key players and how growers' trust in the support and cooperation of other groups and organisations influence their decisions. Without understanding where growers are at, it is difficult to develop systems that will meet their needs.

To address these knowledge gaps, Riverina areas form part of a study to better understand what does the QFly challenge look like from growers' perspective. Riverina Biosecurity Inc. and Heleen Kruger—a researcher from the Australian National University— will conduct a survey with horticulture growers around October and November 2015. 'I see this as a way for growers to have a voice about how they respond to the QFly issue and what their views and expectations are of government, industry bodies and people in towns in minimising the impact of QFly on their operations and income'. (Tammy Galvin) This survey is also conducted in Central Burnett, Queensland and Young and Harden in NSW. The study is funded by the Plant Biosecurity CRC.

Tammy Galvin-RBI

0427 221 651

Heleen Kruger –Australian National University

0412 292 953

NEWS ARTICLE/MEDIA RELEASE

16 OCTOBER 2015

Breakthrough New Product for Fruit Fly Management- THE SHADY GUM NURSERY NARRANDERA SHOWCASING PRODUCT WEDNESDAY 21st October 2015

Queensland fruit fly is a serious pest not just to the commercial horticulture grower but also the serious backyard fruit and vegetable gardener. Costing the Australian growers millions of dollars in lost produce, time and product cost, this pest must be taken seriously, particularly given that Riverina NSW is home to commercial horticulture enterprises that are a crucial factor in the longevity of local economies.

Commercial growers and backyard growers have been waiting with 'baited' breath for the BioTrap female Queensland fruit fly (Qfly) biased lure to land on the market.

The attractant is referred to as biased as the product will attract male Qfly but predominantly more female Qfly than males are lured and killed. 'Up until now there has only been fruit fly trap lures to attract male flies', states Annie Sutcliffe-Young of The Shady Gum Nursery. 'So, this is an additional tool to add to the Qfly management kit to reduce the Qfly numbers'.

The inventor of the BioTrap female biased fruit fly lure, Colin Bain, will be at The Shady Gum Nursery this coming Wednesday 21st October at 1pm to discuss the benefits of this product for Queensland fruit fly management. Bookings are essential. Come down in your lunch hour to meet Colin! **To book in to learn more about this Queensland fruit fly management product please phone The Shady Gum Nursery on 02 6959 1780**

For other fruit fly information contact the Riverina Fruit Fly Campaign Coordinator, Tammy Galvin on 0427 221 651.

$80,000 for fruit fly management scheme

NSW Farmers has welcomed the Federal Government's announcement of an $80,000 funding commitment to a national fruit fly strategy scheme.

NSW Farmers has long supported the creation and impleme-ntation of alternative strategies to help its farming members contr-ol fruit fly.

NSW Farmers Horticulture Committee Chair Peter Darley said the funding was great news for the industry.

"After having fenthion use restricted and so many areas in NSW affected by fruit fly, we need to develop a strategy for their control," he said.

The funding from the government will help increase targeted rese-arch and development into fruit fly strategies, ensure gaps in policy and regulations are covered and identify efficiencies in the processes.

"The horticulture industry makes a significant contribution to the national economy so it makes sense that we should be looking at ways to control such a damaging pest," Mr Darley said.

NSW Farmers recommended a joint Australian and NSW Government trial program be undertaken with vulnerable fruit commodities to accelerate the development and adoption of effective alternative control regimes.

"We know the DPI and other organisations have been looking into different ways to manage fruit fly, and with government funds covering the gaps in research, the implementation of a much needed multi-layered approach to the control of fruit fly is becoming more achievable," Mr Darley said.

"With the control of fruit fly, growers will have less pressure on them and it will increase their ability to access the export market.

Plant Health Australia, the coordinator of the plant biosecurity partne-rship in Australia, said a National Fruit Fly Strategy Advisory Committee would be established to strengthen national strategic oversight of the National Fruit Fly Strategy.

Plant Health Australia CEO Greg Fraser made the announcement following the securing of funding from the partn-ers involved – the Australian Government, state and territory governments and Horticulture Australia Limited.

Enhancing the management of these damaging pests will bring tremendous additional benefits to the horticulture sector, Mr Fraser said.

"Recognising that a number of crops can be impacted, a collaborative approach is the most effective way to manage fruit flies," he said.

"The National Fruit Fly Strategy Advisory Comm-ittee will provide national policy oversight of the domestic management of all fruit fly issues, endemic and exotic species.

"It will allow us to identify areas where efficiencies in processes can be achieved, as well as opportunities for investment in research that has support from all stakeholders. It's a significant step forward."

One of the first actions of the Advisory Committee will be to review the strategy, the implementation plan and to revisit priorities.

To engage all stakeholders and begin discussions, a workshop organised by Horticulture Australia Limited in conjunction with Plant Health Australia will be held in Melbourne on July 15. The workshop will provide an opportunity for all governments and industry bodies to have input and express views on the issues and opportunities arising from national fruit fly management.

Backyard growers guide

Riverina Local Land Services Fruit Fly Campaign Coordinator Tammy Galvin recently released a guide to help backyard fruit and vegetable growers manage the Queensland fruit fly.

The fruit fly is a destructive pest and biosecurity problem for the Riverina horticulture industry as well as back-yard fruit and vegetable growers.

Fruit fly control is no longer regulated, as the NSW Government withdrew funding to manage it in the Riverina.

There was recently an $80,000 Australian Government contribution to national fruit fly strategy but this is not designed to fill the gap left by the withdrawal of NSW Government services.

Backyard fruit and vegetable growers must take on the management of their produce themselves.

For more information contact Ms Tammy Galvin on (02) 69530723, 0427 221 651 or riverinabiosecurity@hotmail.com

MONITORING FOR FRUIT FLY TRAPPINGS AND LARVAE IN FRUIT

Monitoring traps:

* Purchase a suitable fruit fly trap from a nursery or agricultural supplier.
* Hang traps in fruit trees about 1.5 metres high.
* Monitor weekly for fruit fly trappings in spring, summer and autumn; fortnightly in winter. Ms Galvin offers home visits to help identify fruit fly.
* Count and remove any flies trapped and record to compare to following weeks trappings. Although this does not indicate how many flies are about it will give you an indication if populations are increasing. Note: traps only attract male flies and do not control the population. This means growers have to bait spray with an attractant lure and a registered chemical to kill female flies in the area. (See instructions below on backyard treatment of fruit fly infestations-bait spraying).
* Replace wicks in trap every three months.

Monitoring fruit:

* Cut/break open numerous pieces of fruit weekly and inspect for fruit fly maggots. If there are maggots inside, see instru-ctions below for treatment.

The female Queensland fruit fly 'stings' the fruit to lay her larvae? A sting mark will be present on infected fruit.

TREATMENT OF BACKYARD FRUIT FLY INFESTATIONS

* Remove fruit off trees/plants
* Remove fruit from trees or vegetable plants such as tomatoes, capsicums eggplant and chillies weekly or daily if you can. Other fruit hosts can include pomegranates, loquats (Eriobotrya japoni-ca) and feijoa (Acca sello-wiana). Wine grapes are not a preferred host for fruit fly, but they will lay in table grapes.
* If maggots are in fruit, bag up all fruit off from plants. Tie the bag and ensure there are no holes in the bag.
* Place bag in full sun to 'cook' the maggots for a couple of days.
* Bin the bag after maggots in fruit are 'cooked'.
* Proceed with bait spraying program every 7-10 days whilst fruit are susceptible.
* Continue with monitoring according to seasonal conditions

PROTEIN BAIT SPRAYING

Protein bait spraying combination

* As mentioned it is necessary to bait spray to kill both females and males.

The characteristic 'sting' left by a female Queensland fruit fly when she lays her eggs.

Right: A pair of Queensland fruit flies on the head of a match.

* Protein bait spraying is applied to the trunk or foliage of tree or foliage of plant, but *not* the fruit.
* Protein bait spraying is the most effective and integrated pest manage-ment-friendly method to control fruit fly.
* Protein bait spraying is a combination of a liquid protein lure used to attract female flies. As the female needs a feed of protein prior to laying the larvae the combination must include the protein lure as well as the insecticide. See a nursery or chemical retailer for products and rates.

How to apply protein bait spray

* Wear protective clothing when applying bait.
* Mix protein lure/attractant and insecticide as per label instructions. Do not apply more than is recommended or environmental damage may result. It's important to see a nursery or chemical retailer for products and rates. A suitable application unit is a household spray bottle.
* Spray or paint the protein bait mixture onto either the upper trunk or branch of a tree or spray the protein bait mixture onto the underside of foliage, avoiding any fruit. The spray site should be high enough to prevent children and pets from reaching the bait.

INTEGRATED PEST MANAGEMENT BACKYARD GROWERS

These methods do not control fruit fly – they only protect fruit and veggies from the pest.

PRUNING

This can be used to make the tree a more easily managed size to harvest fruit and also to implement fruit fly control methods such as exclusion, baiting and sanitation.

EXCLUSION

This method creates a physical barrier to stop the fruit fly from reaching your fruit and vegetables. Examples are nets, bags and sleeves. These can either protect individual fruits or the whole plant or tree. Contact your nursery or agricultural retailer for purchase of products.

SANITATION

Pick up and destroy all fallen or unwanted fruit from the garden and seal in a black plastic bag. Leave in the sun for several days and then remove. This will stop fruit fly maggots in the fruit from moving into the soil to pupate and later emerging as adult flies.

EARLY HARVEST

Harvest fruit early to avoid fruit fly infestation and maggots in the fruit. Plant susceptible vegetables, such as tomatoes, capsicums, chillies and eggplants early or plant early maturing varieties to avoid large numbers of fruit flies.

FRUIT TREE REMOVAL

Remove trees that are hosts to fruit fly.

Narrandera Argus

Appendix J. Newspaper Items - continued.

Three stories that ran on ABC Riverina News on 14/02/2014

FRUIT FLY CAMPAIGN
HART
Riverina Biosecurity says the only way to control the region's fruit fly epidemic is through commercial and backyard growers.
Newly appointed fruit fly campaign coordinater, Tammy Galvin, says her key aim is to increase community education about the pest.
Ms Galvin says growers can attend workshops in the Leeton, Griffith, Narrandera, Carrathool and Murrumbidgee shires next month to learn more about eradication methods.
She says the Department of Primary Industries routinely monitors traps, but the onus is on producers.
CART:"There is definitely a problem, the way that growers will be able to tackle the problem is to install monitoring traps strategically on their property to monitor the amount of flies that they're catching and if they are then they participiate in routine bait spray programs and backyard growers as well." DUR:16

FRUIT FLY CAMPAIGN 2
HART
Community education has been touted as the solution to the Riverina's fruit fly epidemic.
Tammy Galvin, Riverina Biosecurity's new fruit fly campaign coordinator says the onus is on commercial and backyard growers to control the pests.
Ms Galvin says with autumn approaching, high risk fruits include apples, pears, quinces, amd early citrus varieties such as mandarins and pomegranates.
She says the $600 thousand dollars from the now defunct Riverina Citrus group will go towards community education.
CART:"That will include workshops across Leeton, Griffith Narrandera, Carathool and Murrumbidgee, we'll be looking running those around mid March. Other things that we're aiming to develop is a Facebook information page, monthly update newsletters, things like a phone application and we'll also be looking at piggy-backing with other websites." DUR:18
FRUIT FLY CAMPAIGN 3
HART
With autumn approaching Riverina fruit growers are being urged to protect their properties from fruit flies.
Riverina Biosecurity's new fruit fly campaign coordinator, Tammy Galvin, says the only way to control the pests is through commercial and backyard growers.
Ms Galvin says community education is key to combating the problem, and initiatives will be funded by the now defunct Riverina Citrus group.
She says workshops will be held in the Leeton, Griffith, Narrandera, Carrathool and Murrumbidgee shires next month.
CART:"We're heading into Autumn so the Autumn high risk fruits are are pomme fruits such as apples, pears, quinces, the early citrus fruits such as mandarins, feijoas are also a target and pomegranates. I think that with persistence that it can be controlled, it's somehting that we all have to tackle." DUR:17

Fruit fly control back on track in the Riverina

By Liz Mecham

Fruit Fly control in the Riverina is set to get back on track thanks to the employment of a new Fruit Fly campaign coordinator.

Tammy Galvin began her role as the Riverina's new Fruit Fly campaign coordinator in December last year and while taking a steep learning curve, is catching up to where her predecessor David Troldahl left off when he was lost to New South Wales Department of Primary Industries' restructure.

"It was frustrating that we lost David when he had so many good things on the boil, but it was a tricky case of the Department (of Primary Industries) restructuring and him no longer able to work the two roles as he had done so well," Riverina Biosecurity Committee's Peter Davidson said.

"But Tammy has taken on the job so well and already caught up to speed on a lot of the role, which is fantastic.

"With that stability back in the role, we are looking forward to getting on with projects at hand."

Tammy works in the role three days a week through the Local Land Services offices, based at Leeton.

Finally, that means the Riverina Biosecurity Committee can undertake spraying works around the region after a lengthy handover process between the State Government and the group of spray unit-mounted mule vehicles.

A process that should have taken less than three months has strung out to well over a year and Peter said negotiations were now being finalised where a contractor would use the units full time and undertakes routine fruit fly spraying operations.

"We are still very much trying to get the message out there that growers need to bait spray their own orchards," Peter said.

"We can try and get some regional bait spraying happening, but at the end of the day, growers do have to spray their own fruit crops to ensure they are protected."

But that in itself is a hard sell for the group and Tammy, Peter said, considering the season growers have been contending with in the Riverina.

"It's a hard sell when it is such a hard time for growers personally – lack of rain, wind, prices … it's a very tough season around here and unfortunately, spraying isn't at the forefront of growers' mind and we can all understand that," he added.

"But there is the pressure of fruit fly getting out of control and it is great to see some growers continuing their spraying programs – they are to be commended for that."

Peter said it wasn't "all doom and gloom" with small projects in the area moving the fruit fly control forwards.

Signage indicating travellers were entering a Fruit Fly Restricted area on major roads will be removed in the immediate future, negating the need for visitors to drop fruit off in roadside bins.

"It is a year late, but it's happening and means that those honest people dropping fruit off into bins that weren't being managed, can stop," Peter said.

Trials of new fruit fly traps will be undertaken at the Yanco Agricultural Research Station and Peter said he hoped to find out the long term management future of the fruit fly trapping program (previously undertaken by DPI) in the near future.

A Fruit Fly officer being employed for the Central West region, he said, would help with pressure from the north and allow a networking opportunity for control.

Meetings in mid-March were expected to decide the future directions for the Riverina group with Horticulture Australia Limited and Citrus Australia visiting the region to "discuss options" for programs. A national project to establish a viable sterile male fly factory will also be discussed.

The Riverina Biosecurity Committee is finalising a lengthy handover process with the State Government which will see contractors undertaking spraying works in the region.

New Riverina Fruit Fly Campaign coordinator on board

Tammy Galvin *(pictured)* was appointed to the role of Fruit Fly campaign coordinator in December in a role that is supported through Riverina Biosecurity Incorporated, Riverina Local Land Services and Horticulture Australia Limited.

She is based at the Office of Water, Chelmsford Place, in Leeton.

Tammy is the port of call for coordinating all community fruit fly education events and actions within the local government areas of Leeton, Narrandera, Griffith, Carrathool and Murrumbidgee.

"I will be working with the horticulture industry growers, backyard fruit and vegetable growers, councils, nurseries, and real estate agents who manage rental properties to ensure that the message is out there in our community loud and clear, and that it is up to all of us to be responsible biosecurity citizens when growing fruit and veggies," she said.

"This applies to commercial and backyard growers.

"Please don't hesitate to get in touch and don't forget to find and 'like' us on Facebook, just search for Fruit Fly Campaign Riverina."

Contact Tammy Galvin T: (02) 6953 0723, M: 0427 221 651 or E: riverinabiosecurity@hotmail.com

Queensland Fruit fly It is Everyone's Problem

The Queensland fruit fly is Australia's worst fruit pest, costing fruit growers $100 million a year in lost income and eradication. Poorly maintained backyard fruit trees, with overripe and fallen fruit around their base, are one of the main sources of outbreaks in Australia's major fruit-growing areas. So, if you grow fruit trees in your backyard, our problem is also your problem. The success of a baiting program will rely on getting the majority of households with fruit trees in each neighbourhood involved. Baits must be sprayed every week. The baiting program must also be supported by good practices such as cleaning up all fallen fruit and picking all fruit as it ripens.

Simple Things You Can Do to combat Queensland fruit fly

- Remove any fruit trees you know you can't manage and replace them with non-fruiting varieties. Loquat trees are a particular problem.
- Keep your trees well pruned. Smaller trees are easier to manage.
- Keep the ground under your fruit trees mown so it easier to pick up windfalls later in the season.
- Allow chickens and other livestock to forage under your trees to clean up fallen fruit. Although you may still need to pick up and dispose of uneaten fruit.
- Remove all fallen fruit from under the trees.
- Dispose of rotten and infected fruit by solarising in a well sealed plastic bag for several weeks before composting. Alternatively small quantities may be boiled, microwaved or frozen to kill insect eggs and larvae before disposal.
- Do not put fruit or fruit scraps into uncovered compost bins or worm farms. Fruit flies will breed in these locations as happily as under trees.
- Consider using exclusion bags or netting to keep fruit from being stung by fruit fly.
- Consider baiting or spraying. Products available for the control of fruit fly include splash baits and full cover sprays. Contact your local nursery or garden retail outlet for advice.

Help Your Neighbours

For various reasons people may need help to manage or remove their fruit trees.

Trees on public land are the responsibility of your local Council. Contact your local council to report problem trees on roadside verges or other public land.
For more information contact David Troldahl on 69512546 or email

david.troldahl@dpi.nsw.gov.au

Packing shed workshops to help industry tackle fruit fly

06 Aug 2012

Please note - This news release has now been archived and may contain outdated information.

Riverina Biosecurity Committee is holding a series of packing shed workshops and evening meetings across the Riverina in August to assist industry with bait spraying and trapping Queensland fruit fly.

Peter Davidson, from the Riverina Biosecurity Committee, said the workshops would help the industry take more ownership of the pest issue.

"We are calling for total support from the growers in the region and good attendance at these workshops would show commitment by growers to taking control of fruit fly in the region," he said.

Three packing shed workshops titled 'How to bait spray and trap on your orchard' will be held at Leeton on Monday 13 August, three at Griffith on Tuesday 14 August, and one at Hillston on Wednesday 15 August.

There will also be evening meetings at Leeton and Griffith for people to learn more about fruit fly control from the experts.

In an effort to engage stakeholders, NSW Department of Primary Industries (NSW DPI) assisted in forming the Riverina Biosecurity Committee in April to oversee fruit fly matters.

The committee includes representatives from all fruit fly affected industries, Citrus Australia and NSW DPI.

The committee has developed a new business case for growers to drive a new fruit fly eradication program in the region and the workshops are part of this plan.

Speakers at the workshops include Dan Papacek, director and entomologist from 'Bugs for Bugs' in Queensland, and NSW DPI's research horticulturalist, Andrew Jessup.

These workshops are free and no RSVP is necessary. Supper and refreshments are being sponsored by Yenda Prods.

Workshop details:

The Leeton packing shed workshops will be held on Monday 13 August from 10am to 11:30am at F & E Naimo Packing Shed, Payten Road Corbie Hill; 12:30pm to 2pm at Pacific Fresh, Yanco Road Leeton; and 3pm to 4:30pm at Twin Palms, Walsh Road Stanbridge. The Leeton evening meeting will be held on Monday 13 August from 6pm to 8pm at the Soldiers Club, Leeton.

Griffith packing shed workshops will be held on Tuesday 14 August from 10am to 11:30am at Joes Citrus, Slopes Road Tharbogang; from 12:30pm to 2pm at Clear Lake Citrus, Scott Road Lake Wyangan; and from 3pm to 4:30pm at Mario's Packhouse, Research Station Road Hanwood. The Griffith evening meeting will be held on Tuesday 14 August from 6pm to 8pm at the South Side Leagues Club, Griffith.

The Hillston packing shed workshop with the opportunity to discuss fruit fly control with the experts will be held on Wednesday 15 August from 10am to 12 noon at Northern Citrus, Lake Cargelligo Road, Hillston.

For further information telephone Peter Davidson on (02) 6955 1258 or 0401 657 969 or email pjdavo@activ8.net.au

Media contact: Sarah Chester (02) 6036 2110 or 0417 207 669

NSW GOVERNMENT Department of Primary Industries

Media Release

Joint action needed now to control fruit fly

The Riverina Biosecurity Committee's recently recruited Riverina fruit fly campaign coordinator, David Troldahl, is calling upon the community to work together to stop fruit fly outbreaks.

"I am working closely with all fruit fly affected industries and local communities to inform and educate them on the options available," he said.

"These people are in the fruit fly outbreak areas in the Fruit Fly Exclusion Zone, which covers the main horticultural production areas of Griffith, Leeton, Narrandera and Hillston."

Mr Troldahl said fruit fly was not only a problem for citrus growers, but for all growers of susceptible fruits and vegetables in the region and that included all backyard gardeners as well.

"To achieve any form of control of Queensland fruit fly, it is necessary to draw upon the resources and support of all parties including growers, councils and gardeners to gain the benefits of a joint approach to preventing further outbreaks," he said.

"In the past, the region has enjoyed freedom from fruit fly, but now with the high number of outbreaks recorded, we need to have a major culture change.

"We need to view fruit fly outbreaks as a community problem and it is the responsibility of all fruit and fruit-fly susceptible vegetable growers to help keep fruit fly under control."

Mr Troldahl said growers should use these three simple steps to try to control fruit fly:

- Monitor numbers through use of traps;
- Apply bait sprays to attract and kill flies as they emerge; and
- Use Male Annihilation Technique (MAT) cups, which attract and kill male flies.

"Areas where the growers have been following these three simple steps in recent weeks have seen a significant reduction in the number of flies trapped on their farms," he said.

Riverina Biosecurity Committee group comprises NSW DPI, Citrus Growers, Wine Grapes Marketing Board, Riverina Prune Association, and Leeton, Griffith, Hillston, Carathool and Murrumbidgee local councils..

The group has prepared brochures, posters and advertisements to engage the broader community in controlling fruit fly.

For more information contact David Troldahl on (02) 6951 2546 or email david.troldahl@dpi.nsw.gov.au

Media contact: Sarah Chester on (02) 6036 2110 or 0417 207 669. Photo available from sarahc@sf.nsw.gov.au

twitter Follow us: http://twitter.com/#!/nswdpi

Why you shouldn't put more toxicant into the Queensland fruit fly bait mix than recommended

Many commercial and backyard growers report they have put more toxicant/insecticide in the Queensland fruit fly (Qfly) bait mix than what is recommended 'just to make sure it kills them!'. Whilst growers may think this is a positive action and possibly doing the right thing to lower the population of Qfly, they are actually deterring the female Qfly by overpowering the scent of the protein bait in the mix with too much toxicant.

For the female Qfly to reproduce, she needs to consume protein prior to laying the eggs. For this reason, protein bait laced with the toxicant/insecticide is applied to Qfly host plants and/or other plants to lure the female Qfly to consume the mixture prior to stinging a host fruit and laying eggs. Eggs are laid beneath the host fruit skin and form larvae that will decimate the stung fruit.

The mixture ratio has been scientifically calculated to provide:

- Qfly control
- Environmental considerations
- Considerations for maximum residue limits for chemical use in commercial orchards & residential orchards

The other issue that must be pointed out is that by applying more toxicant/insecticide than what is recommended on the label, growers are contravening legislation for safe chemical application. Remember to always keep records. Always READ THE LABEL THOROUGHLY prior to chemical use.

Photo: www.gardenamateurbogspot.com

Tip: Don't apply bait spray to fruit as the mixture can burn fruit.

For further information about Queensland fruit fly management contact:

Tammy Galvin

Riverina Local Land Services

M: 0427 221 651

E: tammy.galvin@lls.nsw.gov.au

Riverina Biosecurity Incorporated

NSW GOVERNMENT Local Land Services Riverina

HAL Horticulture Australia

Narrandera Shire Council Proactive with Queensland Fruit Fly Host Plant Removal

15.7.15

Narrandera Shire Council (NSC) is value-adding to the Riverina Fruit Fly Campaign with a Queensland fruit fly host plant removal program.

Over recent months NSC has been proactive in removing prickly pear plants from council managed lands. Prickly pear (*Opuntia spp.*) is a Class 4 Locally Controlled Weed. The growth of the plant must be managed in a manner that continuously inhibits the ability of the plant to spread and the plant must not be sold, propagated or knowingly distributed.

NSC Open Space and Recreation Manager says 'We have been targeting Prickly Pear in our managed areas. After inspecting a number of infestations we noticed a high presence of fruit fly. We noticed an increase in the spread of prickly pear this year also'.

The Riverina Fruit Fly Campaign, supported by Riverina LLS, aims to provide management information on the horticultural pest Queensland fruit fly (Qfly) management. The campaign services the shire areas of Leeton, Griffith, Narrandera, Carrathool and Murrumbidgee, which previously fell under the regulations of PFA (Pest Free Area). The PFA was deregulated at the end of 2012 when the onus for Qfly management was placed on all fruit and vegetable growers-commercial or backyard.

Qfly are a major pest to the Riverina horticulture industry. Given that much of the irrigation areas rely on horticulture as their prime income it is crucial that the whole of community activity and routinely carry out Qfly management activities to protect the industry. By council's, commercial growers, backyard growers and all other land managers taking Qfly management seriously, as Narrandera Shire Council have, Riverina can move towards a more strategic wider community approach of area wide management.

For Queensland fruit fly management information, please contact Riverina Fruit Fly Campaign Coordinator, Tammy Galvin on 0427 221 651 or email: tammy.galvin@lls.nsw.gov.au

Don't forget to 'Like' the Riverina Fruit Fly Campaign on FACEBOOK. FOLLOW THIS LINK: **Fruit Fly Campaign-Riverina**

Photo's: Prickly pear removal program for Narrandera Shire Council. Photo courtesy of Roger Evans, Narrandera Shire Council

Appendix K. General News

News 25.6.15

WINTER Backyard Grower Queensland Fruit Fly Management Jobs

Monitoring with MAT traps

A few frosts have been experienced this winter to kill off Queensland fruit fly (Qfly) activity. Be aware, however, that some Qfly can escape the death of frost and will 'over-winter' in tree canopy, waiting for the warmth of spring to be active again. Over the winter monitoring atleast every fortnight is still just as important as it is in the spring, summer and autumn months. Be vigilant towards the end of winter when temperatures are warming up, particularly if warmer than average temperatures are experienced.

Remember that the traps (called MAT traps-stands for male annihilation technology) only attract, trap and kill the male Qfly. The picture below is an example of a MAT trap.

Photo courtesy of Dan Papacek 'Bugs for Bugs'

Winter Qfly management Jobs for the backyard grower

- Prune fruit trees to a manageable height to make life easier for picking fruit and netting with Qfly netting (see below). The picture below shows a fruit tree that is too high to reach fruit. Fruit should be within reach to pick.

- If fruit trees are unwanted or unmanageable then this is the time to remove those trees and replace with non-Qfly host plants.

News 25.6.15

Susceptible winter Qfly host plants

Even though the risk of Qfly attack is lower in winter, there are winter fruits that are susceptible Qfly hosts. These are:

- Apples
- Pears
- Quinces
- Pomegranates
- Winter citrus: navel oranges, mandarins, grapefruit (Qfly love grapefruit)
- Chillies
- Capscicums
- Strawberries

Qfly Netting as a physical barrier over plants

Winter is often the time where many Riverina people will go away on holidays. Qfly management practices still need to be carried out. If getting someone to do this is not an option then the next successful method is to put Qfly netting over the plants. (see resellers such as Yenda Producers, Shady Gum Nursery Narrandera, or MIA Rural)

For further information:

Riverina Fruit Fly Campaign Coordinator

Tammy Galvin

Yanco Agricultural Institute

Irrigation Way,

YANCO NSW 2703

M: 0427 221 651

E: tammy.galvin@lls.nsw.gov.au

Home visits are offered for fruit fly identification

CONTACT: Local nurseries and agricultural product retailers for Queensland fruit fly control/management products & rates of protein lure & insecticide rates. ALWAYS READ THE LABEL.

Monthly Newspaper Column Citrus Segment: 22.4.15

Queensland Fruit Fly Protection with Fruit Fly Netting

A method that has proven extremely effective for excluding Queensland fruit fly in the backyard fruit and vegetable gardening scenario is the use of fruit fly netting.

The netting can be purchased by the metre in sizes to suit the tree or plants that require covering. Suppliers in the Riverina Murrumbidgee Irrigation region are Yenda Producers, MIA Rural and Shady Gum Nursery Narrandera.

Classified as an exclusion method, fruit fly netting has holes that are less than 3mm to inhibit fruit fly entry. The colour is white

The most effective way for the backyard fruit & vegetable grower to manage Queensland fruit fly is by netting susceptible trees and plants with fruit fly netting

Researchers say that it is thought that Queensland fruit fly do not recognise the colour white within the spectrum of the plant world of susceptible host plants.

This management system is an ideal approach to managing Queensland fruit fly on a small scale.

Fruit fly netting can be used in a large scale commercial orchard. It is expected, in time, that this method will be trialled more in commercial orchards in a systems approach with MAT (male annihilation technology) trapping and protein baiting every 7-10 days.

The summer of 2014-2015 saw many crops of backyard tomatoes be destroyed by Queensland fruit fly. A number of backyard growers, including the Riverina Fruit Fly Campaign Coordinator, have reported great success by using fruit fly netting over tomatoes. This option is also suitable for the organic grower.

For further information:
Riverina Fruit Fly Campaign Coordinator
Tammy Galvin
Office of Water Building, Chelmsford Place
LEETON NSW 2705
P: 02 6953 0723

Appendix K. General News- continued.

Monthly Newspaper Column Citrus Segment: 22.4.15

M: 0427 221 651
E: tammy.galvin@lls.nsw.gov.au

Home visits are offered for fruit fly identification
CONTACT: Local nurseries and agricultural product retailers for Queensland fruit fly control/management products & rates of protein lure & insecticide rates. ALWAYS READ THE LABEL.

Horticulture Innovation Australia | NSW | Local Land Services Riverina

Riverina Biosecurity Incorporated

Photo: Fruit fly netting, Source: with permission from www.greenharvest.com.au

News 26.3.15

Risk of Queensland fruit fly attack on navel orange crops- keep on going with routine bait spraying

The weather is cooling off and many commercial growers and backyard growers maybe thinking that they can relax a bit on the routine protein bait spraying programs. Growers are urged not to let the ball drop as there is still high risk of Queensland fruit fly (Qfly) attack throughout April. Placing MAT (Male Annihilation Technology) traps in orchards alone will not supress the population of Qfly. The two methods of management must be integrated as a systems approach to Qfly management.

Mark a day of the week to start routine protein bait spraying and work out the rest of the calendar month 7-10 days as routine reminders. It will be like marking bin days on the calendar

The risk for commercial citrus growers is still for navel oranges. To protect the navel crops from Qfly attack growers must get into the habit of routine bait spraying. One way to form the habit is to pick a day of the week, for example, Monday and mark the rest of the calendar month 7-10 days ahead as a reminder to bait spray on that day. Once commercial growers and backyard growers get into the habit of routine bait spraying it will be just like getting into the habit of putting the bin out.

Over the passing months the Qfly numbers will reduce with increased routine bait spraying as well as anticipated frosts of winter to assist in reducing pressure for the spring season.

Those who have routinely carried out protein bait spraying programs and maintained MAT traps have not experienced attack on crops.

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Queensland Fruit Fly FREE Workshops

IT CAN BE MANAGED

Special guest speaker: Dan Papacek:

Dan is an entomologist who works with the citrus growers of the Central Burnett area of QLD in managing the endemic Queensland fruit fly

Queensland fruit fly (Qfly) is a destructive biosecurity pest for commercial horticultural fruit & vegetable growers and backyard growers of the Riverina

Workshop details:

- how to monitor, identify & MANAGE Queensland fruit fly so that you DO NOT LOSE A CROP AGAIN
- about correct management & control products & where to purchase them
- about routine bait spraying application rates for commercial & backyard grower situations
- about the Qfly seasonal habits
- latest industry updates on Qfly management

Hillston Workshop
Location: Carrathool Shire Council Meeting Room
Date: Monday 18th August 2014
Time: 6pm light supper provided
RSVP required for catering (see contact below)

Narrandera Workshop 1
Location: Narrandera Bowling Club
Date: Tuesday 19th August 2014
Time: 10am morning tea & lunch provided
RSVP required for catering (see contact below)

Narrandera Workshop 2
Location: Narrandera Bowling Club
Date: Wednesday 20th August 2014
Time: 6pm light supper provided
RSVP required for catering (see contact below)

Darlington Point
Location: Darlington Point Club
Date: Thursday 21st August 2014
Time: 6pm light supper provided
RSVP required for catering (see contact below)

Griffith Workshop 1
Location: Griffith Regional Theatre
Date: Monday 8th September 2014
Time: 6pm light supper provided
RSVP required for catering (see contact below)

Griffith Workshop 2
Location: Griffith Regional Theatre
Date: Tuesday 9th September 2014
Time: 10am morning tea & lunch provided
RSVP required for catering (see contact below)

Leeton workshop 1
Location: Leeton Soldiers Club
Date: Wednesday 10th September 2014
Time: 6pm light supper provided
RSVP required for catering (see contact below)

Leeton workshop 2
Location: Leeton Soldiers Club
Date: Thursday 11th September 2014
Time: 10am morning tea & lunch provided
RSVP required for catering (see contact below)

BOOKINGS ESSENTIAL
Contact:
Tammy Galvin
Riverina Fruit Fly Campaign Coordinator
6953 0723 or 0427 221 651
email riverinabiosecurity@hotmail.com

Local Land Services Riverina

25.6.14

COMMERCIAL GROWERS: CORRECT CONTROL PRODUCTS & RATES

It's vital that you use the correct control product and the correct rate.

DO NOT ASSUME THAT IF YOU APPLY MORE BAIT SPRAY THAT YOU ARE

DOING A BETTER JOB.

You could be doing the exact opposite.

Speak with your product retailer for correct products and application rates to ensure

successful fly control. ALWAYS READ THE LABEL

Hy-mal®

Routine bait spraying

If you are using Hymal then you should be mixing at a rate of **435ml per 100 litres of water** mixed with the protein bait lure as the fly attractant– for example, Natflav® at 2 litres added with the 100 litres of water.

If using a **hand gun**, apply mixture to every second tree down every second row and try to get about 100ml/tree onto the tree to achieve a rate of 7 L/ha.

If using a **small tractor or quad bike** with constant flow jets mounted on the rear, spray down every second row with the jets aimed into the foliage each side of the row. You will need to calibrate vehicle speed and flow rate to apply about 15 L/ha.

25.6.14

BACKYARD GROWERS: CORRECT CONTROL PRODUCTS & RATES

Protein Bait Spraying for Backyard Fruit & Vegetable Growers

About protein bait spraying combination

- As mentioned previously it is necessary to bait spray to kill both females & males.
- Protein bait spraying is applied to the trunk or foliage of tree or foliage of plant and NOT THE FRUIT.
- Protein bait spraying is the most effective and integrated pest management (IPM)-friendly method to control fruit fly
- Protein bait spraying is a combination of a liquid protein lure used to attract female flies. As the female NEEDS a feed of protein prior to laying the larvae the combination must include the protein lure as well as the insecticide- *SEE YOUR NURSERY OR CHEMICAL RETAILER FOR PRODUCTS & RATES.*

How to apply protein bait spray

a) Wear protective clothing when applying bait.

b) Mix protein lure/attractant & insecticide as per label instructions. Do not apply more than is recommended- this is where you can do environmental damage. Again, *SEE YOUR NURSERY OR CHEMICAL RETAILER FOR PRODUCTS & RATES.* A suitable application unit is a household spray bottle such as this picture shown below:

c) Spray or paint the protein bait mixture onto either the upper trunk or branch of a tree OR spray the protein bait mixture onto the underside of foliage, avoiding any fruit. The spray site should be high enough to prevent children and pets from reaching the bait.

Here's a recipe in preparation for loquats or mulberrys or strawberry guava-instead of leaving the fruit for the wretched fruit flies ☹WE have to thank Jackie French for this recipe by the way.

Loquat jam or sauce

This is excellent- a thick, rich jam full of flavour as well as sweetness that cries out for scones and cream. Loquats have a strong, pervasive fragrance and really make a far better jam than milder flavoured peaches, apricots or berries.

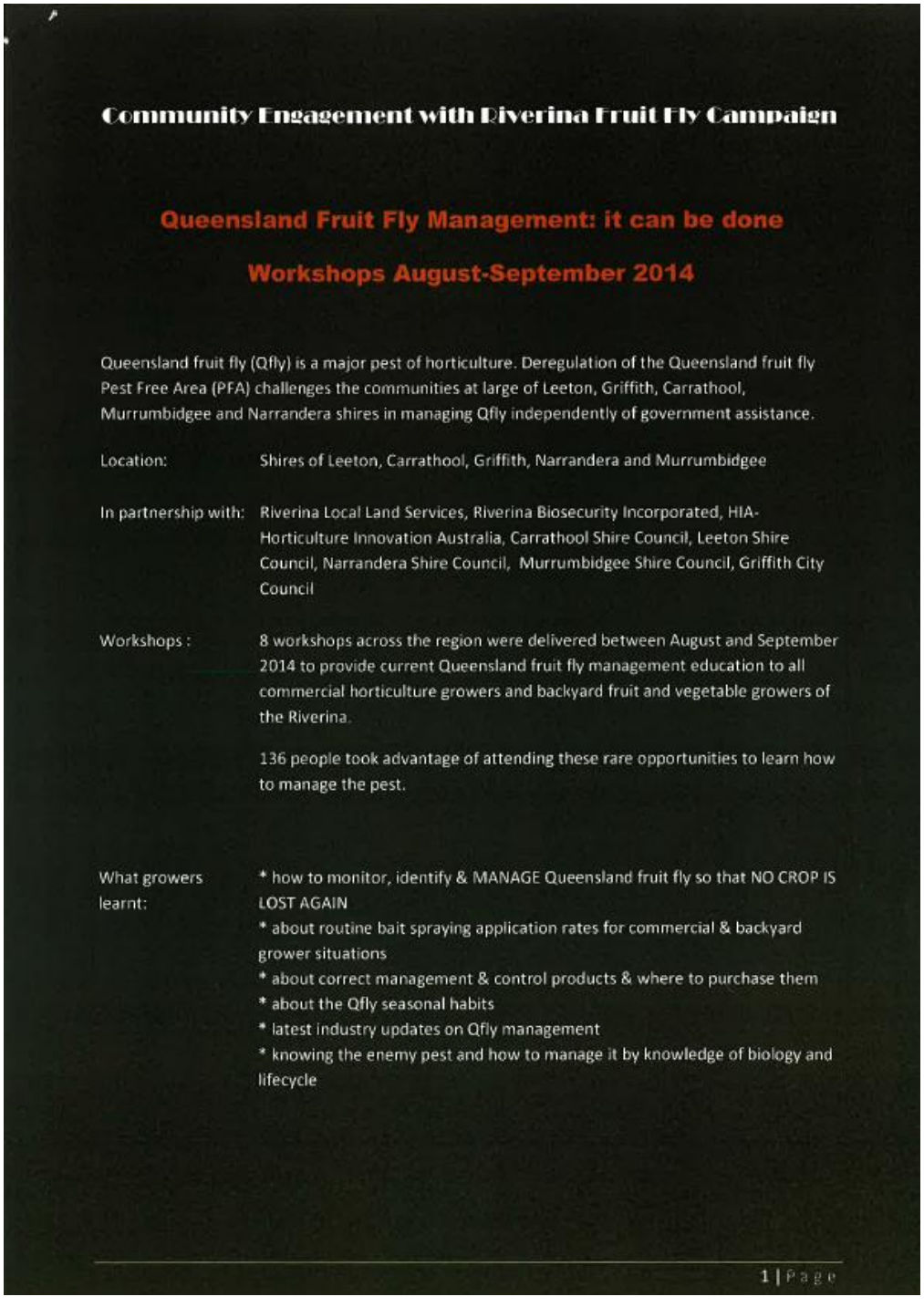
Ingredients:

1 kg loquats, seeds removed but not peeled
200 ml water
Finely grated rind (optional) and juice of 2 lemons
Simmer fruit in water till soft. Mash well. Add juice and rind and sugar; boil rapidly till a little sets on a cold saucer. Bottle and seal.

If you'd prefer loquat sauce to eat with icecream , take it off the stove about 5 minutes after you've added the sugar. Again, bottle, but while the jam goes in the cupboard keep the runny sauce in the fridge.

Mulberry or Strawberry Guava jam

As above, but substitute mulberries or guavas for the loquats. There is no need to peel strawberry guavas, or to take out the tiny stones, but do remove the stems of the mulberries before cooking.



Community Engagement with Riverina Fruit Fly Campaign

Queensland Fruit Fly Management: it can be done

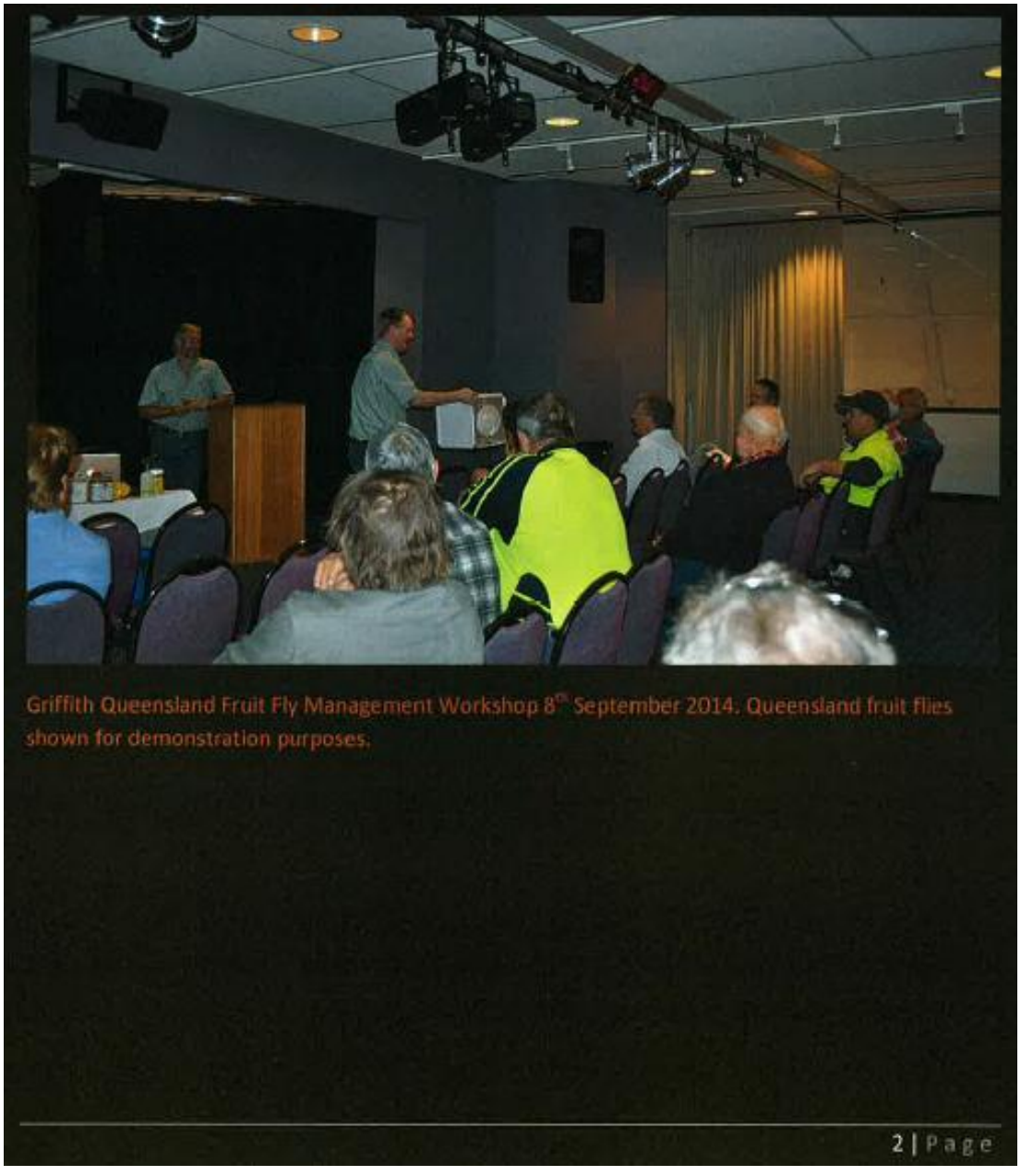
Workshops August-September 2014

Queensland fruit fly (Qfly) is a major pest of horticulture. Deregulation of the Queensland fruit fly Pest Free Area (PFA) challenges the communities at large of Leeton, Griffith, Carrathool, Murrumbidgee and Narrandera shires in managing Qfly independently of government assistance.

Location:	Shires of Leeton, Carrathool, Griffith, Narrandera and Murrumbidgee
In partnership with:	Riverina Local Land Services, Riverina Biosecurity Incorporated, HIA-Horticulture Innovation Australia, Carrathool Shire Council, Leeton Shire Council, Narrandera Shire Council, Murrumbidgee Shire Council, Griffith City Council
Workshops :	8 workshops across the region were delivered between August and September 2014 to provide current Queensland fruit fly management education to all commercial horticulture growers and backyard fruit and vegetable growers of the Riverina. 136 people took advantage of attending these rare opportunities to learn how to manage the pest.
What growers learnt:	* how to monitor, identify & MANAGE Queensland fruit fly so that NO CROP IS LOST AGAIN * about routine bait spraying application rates for commercial & backyard grower situations * about correct management & control products & where to purchase them * about the Qfly seasonal habits * latest industry updates on Qfly management * knowing the enemy pest and how to manage it by knowledge of biology and lifecycle

1 | Page

Appendix K. General News- continued.



Griffith Queensland Fruit Fly Management Workshop 8th September 2014. Queensland fruit flies shown for demonstration purposes.

2 | Page

Contact:

Riverina Fruit Fly Campaign Coordinator

M: 0427 221 651

Riverina Biosecurity Incorporated

2014 **FRUIT FLY NEWSLETTER** Vol. 1 Issue 6

Citrus Gall Wasp

DPI's Steven Falevene presented a citrus gall wasp (CGW) (*Bruchophagus fellis*) awareness field day recently in the Leeton and Griffith areas for citrus growers. CGW is a pest of citrus and is a threat to the home citrus grower also.

CGW attacks and infests young flush growth in spring causing woody 'galls' to form. Larvae (Figure 2) develop inside the gall. Lemons, grapefruit and some rootstocks are the most susceptible-but all citrus varieties can experience attack.

The damage from CGW attack is reduced fruit size, yield and sometimes branch dieback-like Queensland fruit fly the destruction results in loss of income.

There are two natural enemies of CGW which are parasitic wasps. These wasps are brown, where-as CGW wasps are black. The parasitic wasp lays larvae inside CGW eggs.

There have been CGW attacks in the Griffith area. Check trees regularly. To reduce CGW attack it is important to skirt (trim bottom of leaves) citrus trees 3-4 times a year.

Figure 1. The gall-like look of CGW infestations. **Figure 2** below shows the CGW's inside the gall.

parasitic wasp release for CGW control please contact:

Steven Falivene
NSW DPI Citrus Development Officer
P: 03 5019 8405 M: 0427 208611
E: steven.falivene@dpi.nsw.gov.au

In the press

Horticulture Australia signals a renewed focus on fruit fly control to remove $300 million trade barrier.
http://www.abc.net.au/news/2014-08-05/sterile-fruit-fly/5648796

Local fruit fly facility to unlock millions of industry dollars:
http://www.transcontinental.com.au/story/2481405/local-fruit-fly-facility-to-unlock-millions-of-industry-dollars/?cs=1538

For further information:

Riverina Fruit Fly Campaign Coordinator
Tammy Galvin
Office of Water Building, Chelmsford Place
LEETON NSW 2705
P: 02 6953 0723
M: 0427 221 651
E: tammy.galvin@lls.nsw.gov.au]

Home visits are offered for fruit fly identification

CONTACT: Local nurseries and agricultural product retailers for Queensland fruit fly control/management products & rates of protein lure & insecticide rates.

HAL Horticulture Australia

NSW GOVERNMENT Local Land Services Riverina

Riverina Biosecurity Inc.

2014 **FRUIT FLY NEWSLETTER** Vol. 1 Issue 5

Bio-Trap V1

The New Bio-Trap V1 Fruit Fly Trap ticks all the boxes.

- ✓ High Trapping efficiency
- ✓ Easy and simple to install and assemble
- ✓ Light weight and stackable to reduce transport costs
- ✓ High visibility to attract flies and to monitor
- ✓ Secure connection to reduce separation
- ✓ Clear top for easy monitoring
- ✓ Suitable for a range of dry attractants
- ✓ Economical

The Bio-Trap V1 fruit fly trap is a proven field performer with a specifically coloured base made from high impact polystyrene having a central conical entry and four vertical circumferential entry holes.

The clear top which allows easy monitoring and less insect resistance to entry is made from high impact PVC. The combination is quick and easy to assemble and secure against accidental separation.

The vertically orientated conical formed entry holes allow for less resistance for insect entry and reduces insect escape. The positioning of the entry holes also reduce rainfall or spray entry.

Bio-Trap Australia
PO Box 725, Ocean Grove,
Victoria, 3226, Australia
Telephone: +61 3 5255 3658
Email: colin@biotrap.com.au
www.biotrap.com.au

The above fruit fly trap is a new product that may service your needs. Colin Baine of Bio-Trap has said he will come and speak to growers at the next if they are interested. Colin's contact details are listed above on the flyer

PHOTO-GRAPHS REQUIRED

Photo: PIR, SA.

PHOTOGRAPHS REQUIRED FROM GROWERS WHEN CARRYING OUT ROUTINE BAIT SPRAYING.

We need some photo's for new brochures and spray guidelines to make a Queensland Fruit Fly Management Toolkit that can be referred to for the future.

Please call Tammy on 0427 221 651 to assist.

YOU are invited to a WORKSHOP focussing on FRUIT FLY CONTROL through Area-Wide Management and the Sterile Insect Technique (SIT) Featuring Dr. Eric Jang

Date: Monday 14th July 2014

Time: 10:30am to 2pm-lunch provided if RSVP

Where : NSW DPI - Orange Agricultural Institute Training Centre

please call or email Vivienne Touzell on 02 6391 3181 or vivienne.touzell@dpi.nsw.gov.au

HAL Horticulture Australia

NSW GOVERNMENT Local Land Services Riverina

2014

FRUIT FLY NEWSLETTER

Vol. 1 Issue 4

Queensland Fruit Fly Alert for Unusually Warm Autumn

Commercial and backyard fruit and vegetable growers must be vigilant with routine bait spraying for Queensland fruit fly management. Prior to the rain commencing this week a commercial grower captured a female Queensland fruit fly in the act of stinging a navel orange whilst routinely inspecting the orchard.

Autumn usually is a safe period for navel oranges as conditions are normally cooler. What we have been experiencing for autumn recently with warmer temperatures followed by rain and humidity is favoured for Qfly activity.

To protect your crop and fellow growers' industry, do not let the ball drop now. Get onto your routine bait spraying program and continue to monitor your fly traps. The alternative of loosing the crop is far

News interest on the front

Fruit fly sex appeal all about diet - ABC Rural (Australian Broadcasting Corporation) :
http://www.abc.net.au/news/2014-05-29/fruit-flies/5487112#.U4ewyFOPCLM.email

Scientists discover that popular artificial sweetener also kills fruit flies
http://www.theverge.com/2014/6/4/5780428/scientists-discover-that-popular-artificial-sweetener-also-kills

CORRECT CONTROL PRODUCTS & RATES

It's vital that you use the correct control product and the correct rate.

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If using a **small tractor or quad bike** with constant flow jets mounted on the rear, spray down every second row with the jets aimed into the foliage each side of the row. You will need to calibrate vehicle speed and flow rate to apply about 15 L/ha.

HAL NSW Local Land Services Riverina

Riverina Biosecurity Inc.

FRUIT FLY NEWSLETTER

2014 Vol. 1 Issue 3

NOTICE– Numerous times a week people ask me 'When are the DPI coming to do the fruit fly control?' or 'What's going on with the roadside inspections for fruit fly?'

So, the following is a notice to all ratepayers of Leeton, Narrandera, Murrumbidgee, Carrathool and Griffith shires:

Fruit fly control is no longer regulated. This means the government no longer does your fruit fly control & there are no more roadside inspection bays in action. Roadside inspection bays have been removed. **IT IS YOUR RESPONSIBILITY TO CONTROL Queensland FRUIT FLY (Qfly for short)**

Can't manage your fruit trees on your own?

Get a contractor to do it for you.
Or
Get the fruit trees removed

INCREASE OF FRUIT FLY NUMBERS TRAPPED

It is alarming that fruit fly numbers trapped are increasing even with the cool periods over this autumn.

This calls for more vigilance with routine bait spraying of susceptible fruit fly host trees/plants.

If we are to get the problem to a manageable state then EVERYONE MUST DO THEIR BIT and keep the momentum going. Don't get slack and then let the ball drop as that is when fruit fly will opportune a week barrier.

NEED MORE INCOME?

OPPORTUNITY TO START YOUR OWN SPRAY BUSINESS

Riverina Biosecurity Inc. is offering suitably interested people the opportunity to lease 3 Queensland fruit fly spray units. Units may be leased individually or as a system of 3. The areas of operation for these units are within the shires of Leeton, Carrathool, Griffith, Narrandera and Murrumbidgee. To take advantage of this opportunity please contact Tammy Galvin 0427 221 651.

P: 02 6953 0723 E:
riverinabiosecurity@hotmail.com
M: 0427 221 651
Tammy

HAL Horticulture Australia

Proudly Supported by: NSW Local Land Services Riverina

FRUIT FLY NEWSLETTER

February 2014 Vol. 1 Issue 2

Queensland Fruit Fly EXPERT DAN PAPACHEK to Griffith and Leeton!!

Guest Presenting at:

Coro Club Griffith Wednesday March 12th 7pm

Leeton Soldiers Club Thursday March 13th 7pm

Yenda Producers are kindly paying for finger food and drinks. RSVP TO YENDA PRODUCERS: 69668900

HERE DAN SPEAK ABOUT CURRENT DEVELOPMENTS IN THE FRUIT FLY CONTROL FIGHT

WHAT DOES BEING CONNECTED TO YOUR COMMUNITY MEAN TO YOU?

We all live in a community and in some way interact with other community members, groups or organisation's. But what does it mean for you to be connected to your community?

Is it about knowing people when you are down the street or in the supermarket? Or perhaps you appreciate community connectedness immensely when a life crisis has occurred and the casseroles, soups and sweets appear as if by magic on the doorstep with no creators name attached?

Is it the support factor when everyone works together weaving the web that protects one and all? How greatly do you value community support?

The support factor of the unique Riverina is a pronounced property that I have observed greatly. This can be so in the horticulture industry also. By all of the community monitoring and bait spraying for fruit fly we will be protecting the horticulture industry that Riverina is renowned for.

IMPROVE YOUR LIFE BY HELPING OTHERS

WHAT ABOUT ABANDONED ORCHARDS, RENTAL PROPERTIES AND VACANT RESIDENTIAL BLOCKS?

I've had a few questions of late as to the responsibility of fruit fly control on abandoned orchards, rental properties and vacant residential blocks. This is a fair question.

Ultimately, the control responsibility falls onto the owner of the orchard. It's estimated that there would be one fruiting season remaining until the trees die. That is still enough to produce a season of flies. This is really where self-conscience needs to be active. The considerate thing to do for those growers still trying to make a living from horticulture is to knock the trees out straight away.

RBI will be working with councils to develop a fruit fly management plan for abandoned orchards, rental properties and vacant residential blocks. This is an extremely important area of managing the plight against fruit fly attack.

P: 02 6953 0723 E: tammy.galvin@lls.nsw.gov.au
M: 0427 221 651

Tammy

BACKYARD FRUIT and VEGIE GROWERS-

Where to for control products?

Questions of where to purchase backyard fruit fly control products are frequent from backyard fruit and vegie growers.

Agricultural suppliers such Yenda Producers of Yenda, Leeton and Griffith, MIA Rural Leeton and Griffith, Elders Griffith, and Landmark Griffith stock various fruit fly control products to suit your fruit and vegie growing situation.

This is what Queensland fruit fly look like.
Approximately 7mm long

Photo: DPI Vic.

HAL Horticulture Australia

Proudly Supported by: NSW Local Land Services Riverina

FRUIT FLY NEWSLETTER

January 2014 Vol. 1 Issue 1

It's Still Not Too Late to Carry out Summer Fruit Fly Control

How wonderful it is to go to one's own backyard to pick fresh fruit and vegetables? ....UNTIL, your crop is destroyed by the horrid fruit fly maggots! I, myself, have been a victim recently to this invasive pest. My loquats and apricots were destroyed. Not one fruit did I get.

WHAT YOU CAN DO: Backyard trees are but a bonus to your lifestyles. But imagine how it must be for growers whose income depends on the health of their orchards? That's why it is our duty to:

a) Remove all remaining fruit on trees and on ground daily and place in a plastic bag with the neck tied, then disposed of in garbage bin.

b) Spray if appropriate and always follow label instructions. Control products can be purchased from your local agricultural supply store, e.g. Yenda Producers etc.

c) Trap and monitor QFF numbers weekly. Again, traps can be purchased your local agricultural supply store.

QFF Monitoring Traps Still Used in Riverina Production Area

There has been some confusion about the removal of the Queensland Fruit Fly (QFF) monitoring traps used in the Riverina Production Area. It has been incorrectly assumed that monitoring of QFF in these traps no longer occurs and that traps were removed. This is not so.

Traps are DEFINITELY STILL BEING MONITORED by DPI fortnightly for QFF numbers.

OPPORTUNITY TO LEASE SPRAY BUSINESS:
THERE IS STILL SPRAY EQUIPMENT FOR LEASE. PLEASE CONTACT PETER DAVIDSON ON: 0401 657 969 FOR FURTHER DETAILS.

Tammy Galvin-your new Fruit Fly Campaign Coordinator

Hello to all in the Riverina. I trust the festive season was safe and fulfilling for all-and restful!

I was recently appointed to the role of Fruit Fly Campaign Coordinator supported through Horticulture Australia Ltd and Riverina Biosecurity Incorporated.-

I am based at the Office of Water, Chelmsford Place, in Leeton.

My role will see me as your port of call in coordinating all community fruit fly education campaigns within the local government areas of Leeton, Narrandera, Griffith, Carrathool and Murrumbidgee. I will be working with the horticulture industry, growers, backyard fruit and vegetable growers, and councils to ensure that the message is out there in our community loud and clear that it is up to of all of us to be responsible biosecurity citizens when growing fruit and veggies-whether it be commercially or as a backyard grower.

Please don't hesitate to get in touch.
I can be contacted on:

P: 02 6953 0723 E: tammy.galvin@lls.nsw.gov.au
M: 0427 221 651

Tammy

IT IS A COLLECTIVE EFFORT FROM US ALL TO PROTECT OUR INDUSTRY

HAL Horticulture Australia

Supported by: NSW Government | Local Land Services Riverina

NSW GOVERNMENT Department of Primary Industries

Citrus Australia

Citrus Pre-Season Meeting

WHEN: Thursday 2nd May 2013

SPEAKERS:

Andrew Harty – Manager Market Development - Citrus Australia Ltd
- Australian Citrus Quality Standards
- Interstate and International Market Access

Andrew Jessup – Research Horticulturist, NSW DPI
- Autumn fruit fly management

Equipment Demo

Local citrus growers
- Sharing their experience of managing fruit fly

Peter Davidson – Chairperson, Riverina Biosecurity Incorporated
- Progress of Riverina fruit fly management

WHERE:

Leeton
Breakfast meeting
8:00am to 10:00am – F & E Naimo Packing Shed, Payten Road Corbie Hill

Griffith
BBQ Lunch meeting
12:00am to 2:00pm – Mario's Packhouse, Research Station Road Hanwood

Afternoon meeting - drinks
3:00pm to 4:30pm – Clear Lake Citrus, Scott Road Lake Wyangan

For further information please contact Andrew Creek
Mobile: 0428 429 765

HAL
Horticulture Australia

Riverinia Biosecurity Inc

Riverina Biosecurity Inc.

Controlling Queensland Fruit Fly in your garden

In the past we have had area freedom from Queensland Fruit Fly (QFF) but now there is a need to have a major culture change where everyone becomes involved in its control. Please encourage your family and neighbours to use these methods to help in the fight to control QFF in this area.

There are a number of control strategies for QFF in both fruit and vegetables that you can choose from in your garden:

- Pruning. This can be used to make the tree a more easily managed size to harvest fruit and also to implement QFF control methods such as exclusion, baiting and sanitation.
- Exclusion. This is creating a physical barrier to stop the QFF from reaching your fruit and vegetables. Examples are nets, bags and sleaves. These can either protect individual fruits or the whole plant or tree.
- Sanitation. Pick up and destroy all fallen or unwanted fruit from the garden and seal in a black plastic bag. Leave in the sun for several days and then remove. This will stop QFF maggots in the fruit from moving into the soil to pupate and later emerging as adult QFF.
- Inspect fruit regularly for the presence of fruit fly maggots.
- Trapping or Baiting. Weekly applications during the season help reduce the number of QFF in your garden and trapping will show you if the QFF are active in your area. For more information on what to use for baiting or trapping contact your local nursery or chemical retailer.
- Early harvest to remove fruit and avoid QFF infestation and maggots in the fruit. Planting susceptible vegetables early or early maturing varieties to avoid large numbers of fruit flies.
- Removal of fruit trees will remove host fruits from your garden.

These control methods should be used together and not on their own. A combination of a number of different strategies will give you a much better chance of controlling fruit fly in your garden.

For more information contact David Troldahl Ph. 69512546 or Email riverinabiosecurity@hotmail.com

HAL Horticulture Australia

Funded by Horticulture Australia Ltd & Riverina Biosecurity Inc

Riverina Biosecurity Inc

Fruit Fly News

14/3/2013

With the approach of the navel harvest season, this is a timely reminder to all citrus growers to continue to bait spray on a weekly basis and should be used along with Male Annihilation Technique (MAT) cups at approximately 10 per hectare, as well as on farm monitoring for fruit fly. If you follow these steps, as Pacific Fresh has been throughout the season, then the numbers of fruit fly can be controlled. Evidence of this success was shown by the very low numbers of flies on the Pacific Fresh farms.

However, if fruit fly numbers are high then a cover spray may be considered. There are permits for Dimethoate for cover spraying and for post harvest dipping. Dimethoate is a broad spectrum insecticide and you need to consider that it will probably cause problems with Integrated Pest Management (IPM) programs on farm.

Multiple Dimethoate cover sprays in the orchard, or a cover spray in the orchard followed by a postharvest dip in the packing shed, can pose a risk of exceeding the Maximum Residue Limits (MRL) for Dimethoate in the fruit for the domestic market and for some of our export markets.

Dimethoate permit information:

Current permit - **PER13155** (attached)

- In-crop use.
- Uses supported during the review period.
- Expires 5-Oct-13.
- Issued for all states.
- 7 day withholding period.
- APVMA permit.
- Likely that if the review is not completed by 5-Oct-13, that APVMA will extend the permit as they did for similar dimethoate permits last October.

Current permit - **PER13158** (attached)

- Post harvest use.
- Expires 5-Oct-13.
- Issued for all states.
- Growcom is the permit holder.
- There are restrictions on dimethoate use in citrus in the permit (edible skin types and mandarins)
- Likely that if the review is not completed by 5-Oct-13, that APVMA will extend the permit as they did for similar dimethoate permits last October.

Please read the permits and comply with the Maximum Residue Levels for any market that you are trying to access.

HAL
Horticulture Australia

"The Riverina Fruit Fly Campaign Coordinator project is funded by HAL using the citrus levy and matched funds from the Australian Government".

COUNCIL NEWS

PIONEERS TREE UNVEILING

A pioneer tree has been planted to honour the pioneering families which helped establish Leeton 100 years ago.

All of the community are invited to attend the Unveiling of the Pioneer Tree which will happen on Australia Day, Saturday 26th January 2013, 4.30pm Graham Park.

DRAFT POLICY - ABORIGINAL RECOGNITION AND PROTOCOL POLICY

At the Ordinary Meeting of Council held 19 December 2012, the above policy was presented to Council for consideration. Council is required to notify the public and provide the opportunity for submissions to be made by the public regarding this policy.

The policy may be viewed at the Council Chambers, 23-25 Chelmsford Place, Leeton and on Council's website at www.leeton.nsw.gov.au

Anyone wishing to make comment on the above policy can do so in writing addressed to the General Manager, Leeton Shire Council. Comments or submissions will be received up to 4pm, Friday 1 February 2013. All submissions will form part of a report to Council which is publicly available unless otherwise specified.

GAZETTING OF LEETON 100 YEAR CELEBRATIONS

The Leeton Centenary Committee will be holding a BBQ and Official Cutting of the Cake to celebrate 100 years of Leeton being Gazetted on Tuesday the 22nd January at 12.30pm at the Rotunda in Chelmsford Place.

All members of the public are invited to attend this historic day for Leeton.

For more information please phone 6953 0948.

TENDER FOR AUDIT SERVICES

Tenders are called for the provision of Audit Services for a six (6) year period commencing 1 July 2013.

A tender specification can be obtained by contacting Council's Corporate Services Department on telephone 6953 0911, or email council@leeton.gov.nsw.au. For further information contact Council's Director Corporate Services, Mr Duncan McWhirter.

Tenders close on Friday 22nd February 2013 and should be clearly marked "Tender - Audit Services", and be addressed to the undersigned at 23-25 Chelmsford Place, Leeton NSW 2705.

John Batchelor
General Manager

CONTROLLING QUEENSLAND FRUIT FLY IN YOUR GARDEN

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For more information contact
David Troidahl phone 6951 2546
or Email:
riverinabiosecurity@hotmail.com

LEETON SHIRE COUNCIL

NOTIFICATION OF DEVELOPMENT CONSENT ISSUED BY COUNCIL AS THE CONSENT AUTHORITY

DA Number - 130/2012

Location - Lot 98, DP 751679
Irrigation Way
(Main Road 80)
WUMBULGAL

Development - Grain storage and handling facility

The Development Consent is available for public inspection, free of charge at the Environmental & Community Services Department, Leeton Shire Council Offices, 23-25 Chelmsford Place, Leeton. Monday to Friday between the hours of 8.30am and 5pm.

23-25 Chelmsford Place, Leeton
Phone 6953 0911
Fax 6953 3337
Web www.leeton.nsw.gov.au
Email council@leeton.nsw.gov.au
www.facebook.com/leetonshire

After Hours Emergency
Animal Control 0417 259 422
Parks & Gardens 0427 475 588
Roads 0417 297 082 or 0417 659 007

Packer Presentation January 2013

Visited packers – sent letter to packers – no spray won't take fruit.

Trying to get processors to do the same.

Sales of bait and chemical still low – Yenda producers Leeton and Griffith – 10 growers Griffith in Dec.

Were moving 60-80 5L Natflav /week griffith

Now approx 18/ month Natflav leeton 10/ month Griffith

16/ month bugs for bugs 15L Leeton 20/month Griffith

Newsletters emailed to growers and packers can packers forward to growers.

Backyard growers.

Councils flyer in water bill Griffith and Carrathool

Leeton and Narrandera in paper.

Pacific fresh contract spraying a success

Grower lists from packers for contract sprayers 3 ready when mules etc available.

Standardise Spray diary specific for baiting and cover spraying for fruit fly

Riverina Biosecurity Inc.

Fruit Fly News

Issue 2 19/12/12

Weekly bait sprays working

Numbers of Fruit fly trapped have been rising in the past weeks across the region. However in the area where the packing company Pacific Fresh have employed a spray contractor to carry out weekly bait spray applications the fruit fly numbers are still low.

This is really encouraging for all growers, packers, processors and backyard gardeners as it shows that a regular bait spray program can help control fruit fly in the area. Unfortunately the retailers of protein bait and chemicals have reported that their sales of these products has been very low which would indicate that we have a very low uptake of weekly bait spraying in the area and this would explain the reason that trapping numbers are on the increase.

There are three spray contractors who are interested in bait spraying for growers who are not set up to bait spray. If we can get these contractors bait spraying large areas within the Riverina then we may see fruit fly numbers fall. Packing sheds or processors may be interested in getting all their growers to be sprayed as Pacific Fresh are doing and then they know that all their growers are getting bait sprayed prior to delivery of fruit.

Fruit fly control bait spraying program

Fruit fly bait sprays are prepared using a protein source mixed with an insecticide such as (chlorpyrifos, maldison or trichlorfon). Both male and female fruit f ies are attracted to the protein which are yeast based products such as Fruit Fly Lure®, Pinnacle® or Natflav®.

Naturalure® is a pre-mixed bait concentrate that is suitable for organic producers.

Recommended rates

- Use a rate of 2L of yeast protein mixed with 435 Hymal® to 100L of water for routine control.
- A small tractor or quad bike with constant flow jets mounted on the rear. Spray down every second row with the jets aimed into the foliage each side of the row. You will need to calibrate vehicle speed and flow rate to apply about 15 L/ha.
- If using a hand gun, apply the mixture to every second tree down every second row and try to squirt about 100mL/tree onto the foliage to achieve a rate of 7 L/ha.

How to mix the bait spray

Fill tank to ¾ full of the required amount of water. Mix the yeast product in a bucket of water and add to the tank. Mix thoroughly and add the Hymal® to the tank. Fill tank to the required amount of water.

For the control program to be successful, it needs eve yone in the horticultural industry to do their part.

For more information contact David Troldahl Ph. 69512546 or Email david.troldahl@dpi.nsw.gov.au

Funded by your citrus levy and matching Federal Government funds

Riverina Biosecurity Inc.

Fruit Fly News

Issue 1 19/11/12

This is a short note to introduce myself to you. I started work as the Riverina Fruit Fly Campaign Coordinator on Monday 29th October working 3 days per week. I will be travelling around the packing sheds and visiting sheds and growers in the next few weeks and look forward to meeting with as many growers as possible.
I will also be meeting with local councils and other grower groups who are affected by fruit fly.
My contact details are Ph. 69512546 or Email david.troldahl@dpi.nsw.gov.au
Please feel free to contact me if you have any issues.
I look forward to meeting with you. If there is anyone not currently on the email list who is interested in receiving this newsletter can you get them to contact me with their email.
David Troldahl

Fenthion use suspended for citrus.

The APVMA suspended the use of the Lebaycid insecticide spray containing Fenthion for the use in Citrus and a number of other crops on 31 October 2012. This unfortunately removes this chemical from use as a cover spray on fruit fly in citrus.
For more information go to the APVMA website
http://www.apvma.gov.au/news_media/media_releases/2012/mr2012-12.php

Bait spraying and MAT cups.

Bait spraying is the corner stone of our fight against fruit fly and the more growers who bait spray the more chance we have of achieving some sort of control of this pest.
We need to encourage as many growers as possible to apply bait sprays to their orchards on a weekly basis. Baiting with protein lures is essential for good fruit fly control.
Male Annihilation Technique (MAT) cups should be distributed at 10 per hectare these will help reduce the male fruit fly population in the area and these should be used as well as protein bait sprays.

HAL
Horticulture Australia

Funded by your citrus levy and matching Federal Government funds

David Troldahl
District Horticulturist, Yanco
Industry & Investment NSW

Time for action in Fruit Fly control

The Riverina Biosecurity committee have recently recruited David Troldahl as the Riverina fruit fly campaign coordinator. This position is for 3 days a week for the next 3 years and he will be working closely with all the fruit fly affected industries and local communities to inform and educate them on the options available to them.

The campaign against fruit fly needs to be driven by the producers themselves, it is not only a problem for citrus growers but for all growers of susceptible fruits and vegetables in the region and that includes all backyard gardeners as well. To achieve any form of control it is necessary to get compliance from as many growers, councils and gardeners in the use of control options.

In the past there has been area freedom from fruit fly but now there is a need to have a major culture change where everyone becomes involved in its control.

There are three simple steps growers can take to try to control fruit fly – Monitor numbers through use of traps, apply bait sprays to attract and kill flies as they emerge and use Male Annihilation Technique (MAT) cups which attract and kill male flies. Areas where the growers have been following these three simple steps in recent weeks have seen a significant reduction in the number of flies trapped on their farms.

For more information contact David Troldahl on 69512546 or email david.troldahl@dpi.nsw.gov.au

Appendix L. Outputs -Riverina Fruit Fly Campaign

Month/Year	Outcome	Details	Total
Additional Successful Funding & Contribution			
August 2015	BioTrap- Colin Bain	Launch of BioTrap female biased fruit fly lure- contribution from Colin Bain for catering	$320
June 2015	Riverina LLS	Riverina LLS funding under Strategic Partnerships Project 14-15: FlyBye – Practical demonstrations of Queensland Fruit Fly Management	$14,450 ex GST
October 2014	Riverina LLS	Community Partnerships Project funding- Qfly Management Workshops (across the 5 shires)	$11,000 ex GST
		Total Additional Successful Funding	**$25,770 ex GST**
Bulk SMS Alert System Implemented			
2013-2015	SMS Alerts system implemented	SMS alerts were initially sent in bulk through Lotusnotes system. Riverina LLS have adopted SMS Broadcast system for bulk SMS alerts to growers under controlled conditions.	**3 systems used over period**
Collaborative Partnerships Developed			
December 2015-January 2016	Allie Hendy –Riverina LLS	Allie Hendy is a Climate Change degree student & Riverina LLS employee who underwent a cost benefit report on what it costs the grower not to manage Qfly.	1
October to present	HIA Penny Measham & Brenda Kranz	Collaborative partnership built with National AWM Qfly & SITplus Coordinator Penny Measham and Brenda Kranz HIA	1
2015-present	Western LLS Horticulturalist and Central West LLS Horticulturalist cross LLS collaboration, and DPI Biosecurity Dareton and Tumut	Western LLS (Greg Moulds) and Central West LLS (Karen O'Malley) Horticulturalist, DPI Biosecurity Dareton (Alicia Mellberg) and DPI Tumut (Kevin Dodds) have been supportive of the campaign and integrated in exchanged information on Qfly management.	3
August-September 2015	Citrus Australia	Andrew Creek and Tammy Galvin assisted Nathan Hancock with CT14010 preparing a National Citrus Plantings Database Project	1
September-December 2015	Heleen Kruger ANU PhD candidate	Grower survey completed and distributed to growers. Results to be distributed.	1
November 2013 to end of campaign	Riverina Local Land Services (RLLS), DPI, Citrus Australia, HAL/HIA	Negotiation with Riverina LLS to host Riverina Fruit Fly Campaign Coordinator position. Key campaign supporters have been Mr Ray Willis, Mr Rob Kelly, and initially Mr Mike Dunn.	1

4.3.15	Plant Health Australia & DPI	Citrus Biosecurity for Field Staff run by Stewart Pettigrew, Nerida Donavan & Rebekkah Niahl	1
Month/Year	Outcome	Details	Total
2014-present	Wine Grapes Marketing Board (WGMB)	Qfly has not been a major pest of wines grapes, however, engagement between the WGMB and RFFCC has taken place periodically.	1
2014-present	Prune Growers Association (PGA)	PGA Industry Development Officer & RFFCC have been communicating to provide Qfly management extension to Riverina prune growers.	1
2014-present	The Shady Gum Nursery Narrandera	600+ clients on electronic database Riverina wide	1
2015-present	Citrus Industry Development Officer Yanco	Andrew Creek DPI NSWs Citrus Industry Development Officer based at Yanco work closely with RFFCC.	1
2014-present	DPI- Mr Daryl Cooper, Mr Wayne Norden Dr Bernie Dominiak, Mr Lloyd Kingham	From the commencement of the campaign Mr Daryl Cooper and Mr Wayne Norden have been an important part of the successful information cross referencing. Dr Bernie Dominiak of NSW DPI has worked with RFFCC on a fruit fly trap comparison study at Yanco DPI and in writing a paper on rose hips as a Qfly host. (papers attached). Mr Lloyd Kingham has effortlessly supported the citrus growers in Riverina in working towards establishing an Area of Low Pest Prevalence status.	4
2.9.14,3.9.14 4.9.14	Yanco, Hanwood, Griffith	Citrus Gall Wasp workshops –Steve Falivene DPI	1
2013-present	Bugs for Bugs- Dan Papacek	Dan Papacek has been a sounding board to both RFFCCs & has presented at 10 Qfly management workshops in Riverina	1
2013-present	BioTrap- Colin Bain	Colin Bain has worked with RFFCC in dispersing fruit fly trap information to growers. Colin has also presented at a Qfly management workshop at Yanco in 2015 for growers and extended community.	1
2013-present	Carrathool Shire Council	Carrathool Shire Council have been supportive by inserting Qfly management information into rates notices, council newsletters and website. Council also have been positive in overall support of area wide management (AWM) of Qfly within the shire to protect the horticulture sector and towns boundaries. Council hosted a Qfly management workshop in August 2014 at Hillston with an excellent attendance by growers and other rate payers.	1
2013-present	Griffith City Council	Griffith City Council (GCC) have been supportive by allowing insertion of Qfly management information into rates notices, council newsletters and website. GCC have also undertaken extensive treatment works on prickly pear and silver leaf nightshade (Qfly hosts) on council managed lands & are working with other land managers to treat these host weeds on other lands.	1
2013-present	Leeton Shire Council	Leeton Shire Council (LSC) have been supportive by allowing the RFFC to insert Qfly management information into rates notices, council newsletters and website. LSC has also	1

		undertaken collaborative work with National Parks by treating extensive infestations of African olives (Qfly host) as adjoining land managers.	
Month/Year	Outcome	Details	Total
2013-present	Murrumbidgee Shire Council	Murrumbidgee Shire Council (MSC) have been supportive by inserting Qfly management information into rates notices, council newsletters and website.	1
2013-present	Narrandera Shire Council	Narrandera Shire Council (NSC) have been supportive by inserting Qfly management information into rates notices, council newsletters and website. NSC have also undertaken extensive treatment works on prickly pear and silver leaf nightshade(Qfly hosts) on council managed lands & are working with other land managers to treat these host weeds on other lands.	1
2014-present	National Parks (Griffith base)	National Parks have undertaken much control collaborative work with Leeton Shire Council by treating extensive infestations of African olives (Qfly host) as adjoining land managers.	1
2014-present	Murrumbidgee Irrigation	Murrumbidgee Irrigation (MI) have agreed to removing Qfly hosts from MI managed lands.	1
2014-present	Riverina LLS-Lands Services	Riverina LLS have undertaken Qfly host weed management on Riverina LLS managed Travelling Stock Reserves (TSRs). A total of 228 ha in Narrandera Shire and Murrumbidgee Shire areas have been actively treated for Qfly host weed management, including • rogue fruit trees, • prickly pear, • African boxthorn, • African olive, • Silver leaf nightshade, • Blackberry Qfly host removal on-ground works will continue as required	1
		Total No. of Collaborative Partnerships formed	**28**
Cost Benefit Reports			
December 2015-January 2016	Allie Hendy –Riverina LLS	Allie Hendy is a Climate Change Diploma student & Riverina LLS employee who developed a cost benefit report on what it costs the grower not to manage Qfly. (*Copy will be supplied when returned from University*)	1
7.4.15	Pacific Fresh-Frank Mercuri	Discussion report for growers & packers on Packer Driven Bait Spraying Program	1
		Total Cost Benefit Reports	**2**
Database Developed and Updated			
2014-present	Grower database updating	Grower database utilised by RBI (Riverina Biosecurity Incorporated), NSW DPI, Riverina LLS, Citrus Australia continually updated	**430 grower contacts**
Extension Engagements- Field Days/Public Events			
2014	Leeton Show	Qfly management information stand at Leeton Show	1

2014	Henty Field Days	Qfly management information stand at Henty Field Days x 3 days	3
2014	Riverina Field Days	Qfly management information stand at Riverina Field Days x 3 days	2
Month/Year	Outcome	Details	Total
2014	Letterbox walk Somerton Park residents (Griffith)	Qfly management information drop into letterboxes at Somerton Park – Qfly hotspot Griffith	1 (70 houses)
2014	Letterbox walk Chantilly St & Rupert St residents Narrandera	Qfly management information drop into letterboxes at Chantilly St & Rupert St residents – Qfly hotspot Narrandera	1 (70 houses)
17.6.15	CWA Meeting	Qfly management information passed out to members (10 members)	1
2015	Narrandera Show	Qfly management information stand at Narrandera Show	1
2015	Henty Field Days	Qfly management information stand at Henty Field Days x 3 days	3
2015	Riverina Field Days	Qfly management information stand at Riverina Field Days x 3 days	2
2015	Yanco Agricultural Institute Open Day	Qfly management information stand at Yanco Agricultural Institute Open Day	1
2015	Women of Western Riverina Networking Gatherings	Qfly management information at Women of Western Riverina Networking Gatherings x 5	5
		Total No. of Field Days/Public Events	**21**
Extension Enquiries			
2015	Phone/email/face-to-face extension - growers	Common enquiry topics were: What can you do about these abandoned orchards? How do I keep fruit fly away from my crop? What are the current chemicals to use? Can we get the trapping grid increased? What type of funding applications can we look at as a group to get traps put up in the town areas? Emailing of news, other enquiries etc	100
2015	Phone/email/face-to-face extension - backyarders	Common enquiry topics were: Are we going to get rid of fruit fly? Do councils do fruit tree removal? What can you do about my neighbours fruit trees that don't get maintained? I've tried everything! Help! I wish councils' would spray the streets Can you get onto the councils to do something about the towns?	210

Month/Year	Outcome	Details	Total
2015	Phone/email/face-to-face extension – industry other	Common topics were: What can you do about these abandoned orchards? Referrals of growers to RFFCC e.g. new growers to the area Updates on Qfly management product sales (resellers) Invitations to field days Qfly management information request from other land managers, other districts, interstate industry for growers, packers, processors and backyarders Other industries asking for RFFCC assistance with their workshops in the Riverina Other meeting updates & attendances	100
2015	Phone/email/face-to-face extension – Councils	Common enquiry topics were: Have you got information to put on the website? Can DPI spray the streets again? Where can the BioTrap female biased lure be purchased Emailing of news, other enquiries etc	100
2014	Phone/email/face-to-face extension - growers	Common enquiry topics were: What can you do about these abandoned orchards? How do I keep fruit fly away from my crop? What are the current chemicals to use? Can we get the trapping grid increased? Emailing of news, other enquiries etc	100
2014	Phone/email/face-to-face extension - backyarders	Common enquiry topics were: How do I get rid of fruit fly? Do councils do fruit tree removal? What can you do about my neighbours fruit trees that don't get maintained? I've tried everything! Help! Can council remove unwanted fruit trees? Property visits made for one-on-one Qfly management training Emailing of news, other enquiries etc	270

100

2014	Phone/email/face-to-face extension – industry other	Common enquiry topics were: What can you do about these abandoned orchards? Referrals of growers to RFFCC e.g. new growers to the area Updates on Qfly management product sales (resellers) Invitations to field days Qfly management information request from other land managers, other districts, interstate industry for growers, packers, processors and backyarders Other industries asking for RFFCC assistance with their workshops in the Riverina Other meeting updates Emailing of news, other enquiries etc	100
Month/Year	Outcome	Details	Total
2014	Phone/email/face-to-face extension – Councils	Common enquiry topics were: Have you got information to put on the website? Can DPI spray the streets again? Emailing of news, other enquiries etc	100
2013	Phone/email/face-to-face extension - growers	Common enquiry topics were: How do I get rid of fruit fly? Do councils do fruit tree removal? Can you remove my neighbours fruit tree? What can you do about my neighbours fruit trees that don't get maintained? I've tried everything! Help! Emailing of news, other enquiries etc	150
2013	Phone/email/face-to-face extension - backyarders/other	Common enquiry topics were: How do I get rid of fruit fly? Do councils do fruit tree removal? Can you remove my neighbours fruit tree? What can you do about my neighbours fruit trees that don't get maintained? I've tried everything! Help!	200
2013	Phone/email/face-to-face	Common enquiry topics were:	100

	extension - industry other	What can you do about these abandoned orchards? Referrals of growers to RFFCC e.g. new growers to the area Updates on Qfly management product sales (resellers) Invitations to field days Qfly management information request from other land managers, other districts, interstate industry for growers, packers, processors and backyarders Other industries asking for RFFCC assistance with their workshops in the Riverina Other meeting updates Emailing of news, other enquiries etc	
Month/Year	Outcome	Details	Total
2013	Phone/email/face-to-face extension – Councils	Common enquiry topics were: Have you got information to put on the website? Can DPI spray the streets again? Emailing of news, other enquiries etc	100
		Total No. of Extension Enquiries	**1,630**
Logo RBI			
9.9.15	Riverina Biosecurity Inc.-Tammy Galvin	Logo updated	**1**
Meetings			
9.12.15	`Riverina Biosecurity Inc.	AGM	1
30.6.15	Riverina Biosecurity Inc.	General Meeting RBI	1
8.4.15	Riverina Biosecurity Inc.	Packer Processor Meeting	1
4.3.15	Riverina Biosecurity Inc.	General Meeting RBI	1
18.12.14	Meeting with Griffith City Council	Discuss options collaboration in Qfly management	1
6.10.14	Riverina Biosecurity Inc.	General Meeting RBI	1
6.9.14	Riverina Biosecurity Inc.	General Meeting RBI	1
6.8.14	Riverina Biosecurity Inc.	General Meeting RBI	1
29.5.14	Riverina Biosecurity Inc.	General Meeting RBI	1
26.5.14	Meeting with Carrathool Shire Council Director Planning and Environment	Discuss options collaboration in Qfly management	1
April 14	Meeting with Leeton Shire Council	Discuss options collaboration in Qfly management	1

	Manager Parks & Recreation Services		
26.3.15	Telephone meeting Murrumbidgee Shire Council	Discuss options collaboration in Qfly management	1
Month/Year	**Outcome**	**Details**	**Total**
20.3.14	Meeting with Ray Willis, Manager Biosecurity & Emergency Services Riverina LLS	Peter Davidson, Ray Willis Tammy Galvin- discussion of Qfly service options and future Qfly management planning	1
19.3.14	Riverina Biosecurity Inc.	General Meeting RBI	1
20.2.14	Meeting with Narrandera Shire Council	Discuss options collaboration in Qfly management	1
12.12.13	Riverina Biosecurity Inc.	AGM- Introduction of Riverina Fruit Fly Campaign Coordinator (Tammy Galvin) to growers	1
12.2.13	Probodelt & Yenda Producers Meeting	Probodelt Spanish fruit fly trap information meeting with Yenda Producers Yenda/Griffith/Leeton	1
22.1.13	Biosecurity Meeting	Biosecurity Meeting	1
22.1.13	Packer & Exporter Meeting	Packing sheds, processors and exporters meeting	1
April 14	Meeting with Leeton Shire Council Manager Parks & Recreation Services	Discuss options collaboration in Qfly management	1
		Total Meetings	**20**
Newspaper articles			
16.10.15	Media release	The Narrandera Argus: Breakthrough new product for fruit fly management The Shady Gum Nursery Narrandera showcasing product Wednesday 21st October 2015	1
2.10.15	Media release	Upcoming grower survey to understand the Qfly challenge from local perspective	1
15.7.15	All local newspapers	'Narrandera Shire Council Proactive with Queensland Fruit Fly Host Plant Removal'	1
24.6.15	The Irrigator, Leeton newspaper	Leeton growers urged to keep up fruit fly fight: http://www.irrigator.com.au/story/3034006/protect-from-fruit-fly-pest/	1
29.6.15	The ColePoint Observer (Murrumbidgee Shire)	National plan released will help fruit fly fight http://www.colypointobserver.com.au/story/3178093/plan-to-aid-fight-against-pesky-pest/	1
March 2015	Farmtalk magazine	Farmtalk magazine pg.4 http://www.farmtalk.com.au/assets/farm-talk-march-2015.pdf	1
20.02.15 16.2.15	Monthly 'Citrus Segment' column in newspapers; The Irrigator, The Area News, The Narrandera Argus, The Cole Point Observer	http://www.irrigator.com.au/story/2896791/fruit-fly-numbers-on-rise-in-shire/ http://riverina.lls.nsw.gov.au/resource-hub/media-releases/2015/significant-rise-in-numbers-of-queensland-fruit-fly	1

	Riverina Local Land Services		
23.01.15	The Narrandera Argus, newspaper	http://www.narranderaargus.com.au/DesktopModules/PackFlashPublish/ArticleDetail/ArticleDetailPrint.aspx?ArticleID=990&Template=Standard_Print.ascx&siteID=0	1
21.01.15	The Irrigator, Leeton newspaper	http://www.irrigator.com.au/story/2034248/war-on-fruit-fly-in-a-new-phase/	1
18.12.15	ABC Riverina	http://www.abc.net.au/local/stories/2014/12/18/4151269.htm	1
Month/Year	**Outcome**	**Details**	**Total**
17.12.14	Young NSW Witness Mail	Owners should control fruit fly now	1
16.12.14	The Rural, newspaper	http://www.therural.com.au/story/2767288/fruit-fly-pressure-increases/	1
12.12.14	Media Release	Queensland fruit fly on the increase over recent weeks http://riverina.lls.nsw.gov.au/resource-hub/media-releases/2014/queensland-fruit-fly-on-the-increase-in-recent-weeks	1
26.6.14	The Narrandera Argus	Control Rates for Commercial & Backyarder Growers 26.6.14	1
28.5.14	The Irrigator Leeton	Queensland Fruit Fly Alert for Unusually Warm Autumn 28.5.14	1
20.5.14	The Narrandera Argus	The Queensland Fruit Fly Backyard Management Guide was printed in The Narrandera Argus	1
23.1.14	The Narrandera Argus	http://www.narranderaargus.com.au/DesktopModules/PackFlashPublish/ArticleDetail/ArticleDetailPrint.aspx?ArticleID=990&Template=Standard_Print.ascx&siteID=0	1
21.1.14	The Irrigator Leeton	'War on fruit fly in a new phase' 21.1.14	1
1.2.13	Citrus Australia	Interview Liz Mecham for Citrus Australia news	1
January 2013	The Narrandera Argus	'Controlling Queensland Fruit Fly in your garden'	1
30.11.12	DPI	Media Release: 'Time for action in Fruit Fly control'	1
27.11.12	The Irrigator Leeton	'Queensland fruit fly. It is everyone's problem'	1
23.10.12	Citrus Australia	Article on website: new appointment to address Riverina fruit fly control, market access concerns: http://www.citrusaustralia.com.au/latest-news/new-appointment-to-address-riverina-fruit-fly-control-market-access-concerns-1	1
13.9.12	The Bulletin-Rockhampton Morning Bulletin	New strategy to manage fruit fly: http://www.themorningbulletin.com.au/news/new-strategy-manage-fruit-fly/1543607/	1
		Total No. of Newspaper Articles	**25**
News- General Newsletter			
December 15	General news dispersed across campaign area & in information packs	'Why you shouldn't use more insecticide than recommended'	1
November 15	General news dispersed across campaign area & in information packs	'Technology breakthrough with newly released female biased Queensland fruit fly lure'	1

15.7.15	General news dispersed across campaign area & in information packs	'Narrandera Shire Council Proactive with Queensland Fruit Fly Host Plant Removal'	1
June 15	General news dispersed across campaign area & in information packs	'Winter backyard grower Qfly management jobs'	1
May 15	General news dispersed across campaign area & in information packs	'Protect from Queensland Fruit Fly with Fruit Fly Netting' 'Community Engagement Queensland Fruit Fly Mgt Workshops'	2
Month/Year	Outcome	Details	Total
April 15	General news dispersed across campaign area & in information packs	'Qfly Host Plant List'	1
March 15	General news dispersed across campaign area & in information packs	'Don't Let the Ball Drop-Keep on Going Bait Spraying'	1
November 14	General news dispersed across campaign area & in information packs	'Citrus Gall Wasp'	1
October 14	General news dispersed across campaign area & in information packs	'In the Swing of Queensland fruit fly management activities- collaboration'	1
September 14	General news dispersed across campaign area & in information packs	'Steps for Queensland fruit fly management'	1
August 14	General news dispersed across campaign area & in information packs	'Beat Queensland fruit fly before they hatch'	1
June 14	General news dispersed across campaign area & in information packs	'Control Rates for Commercial Growers & Backyarders'	1
June 14	General news dispersed across campaign area	Newsletter 6.	1
May 14	General news dispersed across campaign area	Newsletter 5.	1
April 14	General news dispersed across	Newsletter 4.	1

	campaign area		
March 14	General news dispersed across campaign area	Newsletter 3.	1
February 14	General news dispersed across campaign area	Newsletter 2.	1
January 14	General news dispersed across campaign area	Newsletter 1.	1
14.3.13	Riverina Biosecurity Inc.	Fruit Fly News Issue 3. dispersed across campaign area	1
January 2013	Riverina Biosecurity Inc.	'Controlling Queensland Fruit Fly in your garden'	1
Month/Year	Outcome	Details	Total
19.12.12	Riverina Biosecurity Inc.	Fruit Fly News Issue 2. dispersed across campaign area	1
19.11.12	Riverina Biosecurity Inc.	Fruit Fly News Issue 1. dispersed across campaign area	1
		Total No. of News-general newsletter	**23**
On-Ground Qfly Host Plant Removal Monitoring			
2015-2016	Griffith City Council -Prickly pear campaign removal	Prickly pear campaign removal across Griffith City Council managed lands and liaison with privately managed lands for prickly pear removal Free Tip Days for Prickly Pear Disposal	1,000 ha GCC Landholders
2015-2016	Riverina Local Land Services- prickly pear, silver leaf nightshade, African boxthorn, African olive, blackberry	Riverina LLS has undergone Qfly host removal of prickly pear, silver leaf nightshade, African boxthorn, African olive, blackberry within the campaign area on Travelling Stock Reserves (TSR).	228 ha RLLS-TSR
2015	Narrandera Shire Council- prickly pear	Narrandera Shire Council has undergone Qfly host removal of prickly pear, silver leaf nightshade	100 ha NSC Landholders
2014-present	Private landholders	Approximately 50 ha Qfly host plants that FFCC is aware of has been removed	50 ha
2014-present	Murrumbidgee Irrigation (MI)	MI have removed Qfly host plants from their managed lands	5 ha
2014-present	National Parks	National Parks have removed Qfly host plants from much of their managed lands	100 ha
		Total No. of Stakeholders Removing Qfly Host Plants **Total No. of approximate Hectares of Qfly Host Plants Removed**	**6 stakeholder groups** **1,483 ha approx.**
Presentations			
21.10.15	Ganmain Mens Shed & Coolamon	Qfly management workshop. 40 attendees	1 x

	Shire Council		presentation 40 x attendees
12.5.15	Gralee School for Specific Purposes Leeton	Creative Catchment Kids program with Wirraminna Environmental Education Centre & Riverina LLS engaged with Gralee School for Specific Purposes to produce an educational book relating to local pest management issues.	1 x presentation 10 x children

Month/Year	Outcome	Details	Total
28.4.15	Hanwood Public School	Creative Catchment Kids program with Wirraminna Environmental Education Centre & Riverina LLS engaged with Hanwood Public School to present on local pest management issues, including Queensland fruit fly.	1 x presentation 23 x children
2015	Leeton Community Garden	Qfly management information provided to Leeton Community Garden	1 x presentation 2 x gardeners
2014 x 2 2015	Narrandera Landcare Community Garden	Qfly management information provided to Narrandera Landcare Community Garden.	3 x presentations 18 x gardeners
		Total No. of Presenations **Total No. of Attendees**	**7** **93**
Queensland Fruit Fly Management Guides (included in rates notices)			
2015	Backyard Guide to Queensland Fruit Fly Management	Distributed in rates notices to rate payers in campaign shire areas of: Griffith, Leeton, Carrathool, Murrumbidgee and Narrandera	1 x guide prepared. Approximately 20,000 rate payers reached
2014	Steps for Commercial Queensland Fruit Fly Management	Distributed to all packhouses 25 for handing out to growers	1 x guide prepared. Approximately 420 growers

			reached Distributed to 25 packing sheds/processors
		Total No. of Qfly Management Guides developed	**2**
Queensland Fruit Fly Management Product Sales			
2013- 2015	Reseller Qfly management product sales over campaign	Steady increases each year, including fruit fly netting.	20%
		Total % increase of Qfly Management Product Sales	**20 %**
Month/Year	Outcome	Details	Total
Queensland Fruit Fly Management Workshops			
21.10.15	Narrandera	BioTrap Female Biased Lure & Qfly Management at The Shady Gum Nursery	1 x workshop 20 x attendees
21.8.15	Yanco	BioTrap Female Biased Lure & Qfly Management	1 x workshop 40 x attendees
July 2015	Griffith	Packer & Grower Qfly Management Workshop Rinaland	1 x workshop 16 x growers
8.4.15	Whitton	Packer/Processor Qfly Management Planning Workshop	1 x workshop 12 x attendees
4.3.15	Riverina Biosecurity Inc.	Future Direction Workshop	1 x workshop 19 x attendees
3.3.15	Plant Health Australia & DPI	RFFCC, Riverina LLS Biosecurity staff attended: Citrus Biosecurity for Field Staff run by Stewart Pettigrew, Nerida Donavan & Rebekkah Niahl	1 x workshop 10 x attendees

9.9.14	Griffith	Griffith City Council greatly supported a Qfly Management Workshop with Guest Speaker Dan Papacek (Bugs for Bugs) by supplying the venue.	1 x workshop 13 x attendees
8.9.14	Griffith	Griffith City Council greatly supported a Qfly Management Workshop with Guest Speaker Dan Papacek (Bugs for Bugs) by supplying the venue.	1 x workshop 20 x attendees
11.9.14	Darlington Point	Murrumbidgee Shire Council greatly supported a Qfly Management Workshop with Guest Speaker Dan Papacek (Bugs for Bugs) by supplying the venue.	1 x workshop 11 x attendees
11.9.14	Leeton	Leeton Shire Council greatly supported a Qfly Management Workshop with Guest Speaker Dan Papacek (Bugs for Bugs) by supplying the venue.	1 x workshop 17 x attendees
10.9.14	Leeton	Queensland Fruit Fly Management- It Can Be Done! Workshop Leeton Shire Council greatly supported a Qfly Management Workshop with Guest Speaker Dan Papacek (Bugs for Bugs) by supplying the venue.	1 x workshop 12 x attendees
19.8.14	Narrandera	Narrandera Shire Council greatly supported a Qfly Management Workshop with Guest Speaker Dan Papacek (Bugs for Bugs) by supplying the venue.	1 x workshop 17 x attendees
Month/Year	**Outcome**	**Details**	**Total**
19.8.14	Narrandera	Narrandera Shire Council greatly supported a Qfly Management Workshop with Guest Speaker Dan Papacek (Bugs for Bugs) by supplying the venue.	1 x workshop 13 attendees
18.8.14	Hillston	Carrathool Shire Council greatly supported a Qfly Management Workshop with Guest Speaker Dan Papacek (Bugs for Bugs) and supplied the venue.	1 x workshop 24 x attendees
2.5.13	Leeton	F & E Naimo Packing Shed, Corbie Hill. Bait spraying Equipment Demonstration to growers with guest speakers	1 x workshop 30 x attendees
2.5.13	Hanwood-Griffith	Mario's Packhouse, Hanwood. Bait spraying Equipment Demonstration to growers with	1 x workshop

		guest speakers	30 x attendees
2.5.13	Lake Wyangan-Griffith	Clear Lake Citrus, Lake Wyangan. Bait spraying Equipment Demonstration to growers with guest speakers	1 x workshop 30 x attendees
12.3.14	Yenda Producers & Dan Papacek	Griffith- Qfly management	1 x workshop 30 x attendees
11.3.14	Yenda Producers & Dan Papacek	Leeton- Qfly management	1 x workshop 20 x attendees
		Total No. of Workshops **Total No. of Attendees (note: attendee numbers for highlighted workshops are not recorded)**	**19 x workshops** **303 attendees**
Radio			
18.12.14	ABC Riverina Radio	http://www.abc.net.au/local/stories/2014/12/18/4151269.htm Interview was with Chris Coleman	1
Aug-Sept 14	Community Radio Griffith, Narrandera	Ads for Qfly management workshops August and September 2014	1
18.2.14	ABC Riverina	Interview: Chloe Hart with Tammy Galvin	1
14.2.14	ABC Riverina	Yenda Prods arranged radio ad for Dan Papacek Qfly Management Sessions	1
	Community Radio Griffith	Ads for Qfly management workshops	1
	Community Radio Narrandera	General Qfly management interview	1
17.11.12	Local radio	Qfly awareness	1
7.11.12	ABC	Qfly awareness	1
		Total No. of Radio broadcastings	**8**
Month/Year	Outcome	Details	Total
Rates Notices Inclusions			
2015	Queensland Fruit Fly Backyard Management Guide	Included in rates notices for Wagga Wagga City Council	1
2014	Queensland Fruit Fly Backyard	Included in rates notices for the 5 shires of: Carrathool Shire Council, Griffith City	1 (5 shires)

	Management Guide	Council, Leeton Shire Council, Murrumbidgee Shire Council and Narrandera Shire Council	
5.2.13	Queensland Fruit Fly Seasonal Calendar Guide	Berrigan Shire Council Queensland Fruit Fly Seasonal Calendar Guide Queensland Fruit Fly Seasonal Calendar Guide	1
9.1.13	Queensland Fruit Fly Seasonal Calendar Guide	Included in rates notices for the 5 shires of: Carrathool Shire Council, Griffith City Council, Leeton Shire Council, Murrumbidgee Shire Council and Narrandera Shire Council	1 (5 shires)
		Total No. of Rates Notices Inclusions **Total No. of rate payers reached**	**4 x 20,000 approx. 64,000 Wagga approx..**
Real Estate Landlord/Tenant Inclusions			
2015	Letter to Tenants & Landlords	Included in rates notices for the 5 shires of: Carrathool Shire Council, Griffith City Council, Leeton Shire Council, Murrumbidgee Shire Council and Narrandera Shire Council	1 (5 shires)
2014	Queensland Fruit Fly Backyard Management Guide	Included in rates notices for the 5 shires of: Carrathool Shire Council, Griffith City Council, Leeton Shire Council, Murrumbidgee Shire Council and Narrandera Shire Council	1 (5 shires)
		Total No. of Real Estate Agent Inclusions	**2**
Television			
September 2015	WIN TV	Ads for Qfly baiting programs to commence on farms and within community	1
February 2015	WIN TV	WIN TV Interview with Griffith Grower affected by Qfly & Tammy Galvin	1
12.11.14	Prime News Aired 13.11.14. TV interview with Frank Mercuri Pacific Fresh on successful baiting programs by a packhouse	https://au.prime7.yahoo.com/n4/news/a/-/local/25507117/why-we-could-be-losing-the-battle-against-fruit-flies-video/	1
Aug-Sept 14	WIN TV	Ads for Qfly management workshops August and September 2014	1
Aug-Sept 14	WIN TV	Ads for Qfly baiting programs to commence on farms and within community	1
May-June 13	WIN TV	Qfly Baiting program ads	1
November 2012	WIN TV	Packing Shed workshops Ad	1
		Total No. of Television broadcastings	**7**
Month/Year	Outcome	Details	Total
Websites- Qfly Management Information Posted			
2015-present	Murrumbidgee Field Naturalists	The Murrumbidgee Field Naturalists link in with other land management websites http://mfn.org.au/	1

2014-present	The Facebook account & page for Fruit Fly Campaign Riverina has reached many backyarders of the 5 LGAs of the campaign area.	Some facebook page followers heard about the Qfly workshops through the page & attended. https://www.facebook.com/pages/Fruit-Fly-Campaign-Riverina/749241258419773	1
2014-present	Riverina Local Land Services	Riverina Local Land Services	1
2014-present	Murrumbidgee Irrigation	Murrumbidgee Irrigation have been supportive by inserting Qfly management information website and supporting the removal of Qfly host plants on their managed lands.	1
2014-present	Murrumbidgee Shire Council	Murrumbidgee Shire Council (MSC) have been supportive by inserting Qfly management information website.	1
2014-present	Murrumbidgee Landcare Inc (MLi)	Murrumbidgee Landcare Inc (MLi) have been supportive by inserting Qfly management information website.	1
2014-present	Leeton Shire Council	Leeton Shire Council (LSC) have been supportive by inserting Qfly management information website.	1
2014-present	Narrandera Shire Council	Narrandera Shire Council (NSC) have been supportive by inserting Qfly management information website.	1
2014-present	Griffith City Council	Griffith City Council (GCC) have been supportive by inserting Qfly management information website.	1
2014-present	Ray White Real Estate Griffith	Ray White Real Estate Griffith have hosted Qfly management information on their website and communicated with landlords and tenants regarding fruit fly hosts	1
2014-present	Other Facebook pages –	Backyard Vegetable Growers of the MIA, Riverina Vegetable Gardeners	2
27.11.12	Ricegrowers	Seasonal Backyard Guide on Ricegrowers website	1
		Total No. of Websites	**13**

Steps for Commercial Queensland Fruit Fly Management

Monitoring and Baiting – ESSENTIAL steps to manage fruit fly in the orchard

1. Monitoring for fruit fly with MAT Traps

• MAT traps hung every 250m around the outside of the orchard and some placed down a row through the middle of the farm. The suggestion is 10-20 MAT/ ha.

• Hang traps on the eastern side of fruit trees about 1.5m high.

• Monitor traps weekly in spring, weekly in, summer and autumn and fortnightly in winter

• Remove and count the fruit flies. Keep a record of the flies caught for each trap so you can follow fruit fly population trends on your farm.

• Replace trap wicks every 3 months.

• Brands include: BioTrap, and Bugs for Bugs, for example.

NOTE: MAT traps - stands for male annihilation technology. MAT traps only attract, trap and kill the male Qfly. This is why it is critical that routine bait spraying is implemented in conjunction with the use of MAT traps.

Female Biased Fruit Fly Gel Attractant for Traps

• Female biased fruit fly gel attractant is now available for purchase.

• The gel does attract male Qfly but predominantly female Qfly.

• The gel provides greater protection against Qfly attack.

• To be used in conjunction with baiting.

Monitoring fruit & early harvest:

• Inspect fruit weekly for fruit fly maggots. If there are maggots inside, see instructions below for cover spray.

• Ripening fruit is most attractive to fruit fly. Harvest the fruit as early as possible.

1

Appendix M. Queensland Fruit Fly Management Guide- Commercial Growers continued.

2. Protein Bait Spraying Every 7-10 days Spring, Summer, Autumn

About protein bait spraying combination

Protein bait spraying is a method of fruit fly control entailing the mixing and application of a protein bait (attractant) and a registered insecticide. Regular bait spraying is effective as females feed on protein prior to laying eggs. The insecticide kills the fruit fly before egg lay can occur.

- Bait spray will kill both female and male fruit flies.
- Protein bait spraying is applied to the lower foliage of the tree, avoiding as much fruit as practical. Do NOT purposely target FRUIT. Bait spraying soil does not kill fruit flies.
- Protein bait spraying is an effective and integrated pest management (IPM)-friendly method to control fruit fly

How to apply protein bait spray

a) Wear personal protecting equipment (PPE) when applying bait.

b) Mix protein lure and insecticide as per label instructions. Do not apply more than is recommended. Failing to follow label directions can damage fruit.

MIXING RATES

Mixture:

Abamectin (APVMA PERMIT 14932): 25mls/100L **water mixed with**

For example, Bugs for Bugs protein bait lure, 2L/ 100L

Or Bio- Trap Hymlure, 2L/ 100L, AND a thickener, such as KELTROL at 5g per Litre of protein bait lure

Hy-Mal®: 435ml/100L **water mixed with**

For example, Bugs for Bugs protein bait lure, 2L/ 100L

Or Bio- Trap Hymlure, 2L/ 100L

c) Use a suitable application method e.g. quad bike or mule etc. Spray the protein bait mixture onto the lower skirt of trees with a hollow cone nozzle. Alternatively use a hand spray gun to spot spray bait mix high enough to prevent children and pets from reaching the bait.

2

Appendix M. Queensland Fruit Fly Management Guide- Commercial Growers continued.

APPLICATION RATES

Boom:

15-20L/ha every second tree-every second row with jets aimed into foliage each side of the row.

Spot Spraying:

Approximately 50-100ml of mixture/tree- every second tree, every second row.

Maggots or Larvae already in fruit

- If maggots present in fruit, cover spray with a registered systemic insecticide. Cover sprays disrupt orchard beneficial insect activity. Monitor for insect pests like mites and scale.
- Two consecutive cover sprays over one week may be required to kill larvae
- Proceed IMMEDIATELY with a **bait spraying program every 7-10** days during spring, summer and autumn. Two protein bait sprays per week may be required until numbers are reduced in monitoring trap counts. If the next generation of flies hatch, apply another single coverspray.

For further information:
Riverina Fruit Fly Campaign Coordinator
Tammy Galvin
M: 0427 221 651
E: tammy.galvin@lls.nsw.gov.au

Farm visits are offered for fruit fly identification

CONTACT: Agricultural product retailers for Queensland fruit fly management products. Discuss mixing rates and application with their horticultural staff. ALWAYS READ THE PRODUCT LABEL.

Acknowledgment: this guide was prepared by Tammy Galvin and Andrew Creek

Riverina Biosecurity Incorporated

NSW GOVERNMENT Local Land Services Riverina

Horticulture Innovation Australia

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Appendix N. Queensland Fruit Fly Management Guide- Backyard Growers

Queensland FRUIT FLY-Backyard MANAGEMENT GUIDE

Queensland fruit fly is a destructive pest & a biosecurity problem for the Riverina horticulture industry & backyard fruit & vegetable growers

NOTICE

Fruit fly control is no longer regulated. This means the government does not do your fruit fly control & there are no more roadside inspection bays -
IT IS YOUR RESPONSIBILITY TO CONTROL QUEENSLAND FRUIT FLY (Qfly for short)

Monitoring for Fruit Fly Trappings & Larvae in Fruit

Monitoring Traps

- Purchase a suitable fruit fly trap from a nursery or agricultural supplier.
- Hang traps in fruit trees about 1.5m high. See picture to right/bottom left
- Monitor weekly for fruit fly trappings in spring, summer & autumn; fortnightly in winter. *If you need assistance identifying fruit fly contact the Fruit Fly Campaign Coordinator-phone number on back of this guide.* See Qfly picture to the right/bottom right
- Count & remove any flies trapped & record to compare to following weeks trappings. Although this does not indicate how many flies are about it WILL give you an indication if populations are increasing. NOTE: traps only attract male flies & do not control the population. This means we have to bait spray with an attractant lure & a registered chemical to kill female flies in the area. (See instructions below on Backyard Treatment of Fruit Fly Infestations-Bait Spraying)
- Replace wicks in trap every 3 months

Monitoring fruit:

- Cut/break open numerous pieces of fruit weekly & inspect for fruit fly maggots (see picture top right of fruit fly maggots in apricot). If there are maggots inside, see instructions below for treatment.

Apricot crop infested with fruit fly maggot December 2013

Photo: Tammy Galvin

Photo: Dan Papacek

Photo: NSW DPI

Backyard Treatment of Fruit Fly Infestations

Remove fruit off trees/plants

- Remove fruit from trees or vegetable plants such as tomatoes, capsicums & chillies weekly or daily if you can.
- If maggots are in fruit, bag up all fruit off trees/plants. Tie the bag, making certain of no holes in bag.
- Place bag in full sun to 'cook' the maggots for a couple of days.
- Bin the bag after maggots in fruit are 'cooked'
- Proceed with bait spraying program every 7-10 days whilst fruit are susceptible.
- Continue with monitoring according to seasonal conditions

Susceptible Vegetables are:

Tomatoes
Capsicums
Chillies
Eggplant

DID YOU KNOW?

~ That the female Queensland fruit fly 'stings' the fruit to lay her larvae? A 'sting' mark will be present on the attacked fruit

~ Although wine grapes are not a preferred host for Queensland fruit fly, table grapes are fruit fly host

Will fruit fly attack the humble pomegranate? Answer: YES

Riverina Biosecurity Inc.

Appendix N. Queensland Fruit Fly Management Guide- Backyard Growers

continued.

Queensland FRUIT FLY-Backyard MANAGEMENT GUIDE

Protein Bait Spraying for Backyard Fruit & Vegetable Growers

About protein bait spraying combination

- As mentioned previously it is necessary to bait spray to kill both females & males.
- Protein bait spraying is applied to the trunk or foliage of tree or foliage of plant and NOT THE FRUIT.
- Protein bait spraying is the most effective and integrated pest management (IPM)-friendly method to control fruit fly
- Protein bait spraying is a combination of a liquid protein lure used to attract female flies. As the female NEEDS a feed of protein prior to laying the larvae the combination must include the protein lure as well as the insecticide- *SEE YOUR NURSERY OR CHEMICAL RETAILER FOR PRODUCTS & RATES.*

How to apply protein bait spray

a) Wear protective clothing when applying bait.

b) Mix protein lure/attractant & insecticide as per label instructions. Do not apply more than is recommended- this is where you can do environmental damage. Again, *SEE YOUR NURSERY OR CHEMICAL RETAILER FOR PRODUCTS & RATES.* A suitable application unit is a household spray bottle such as this picture shown below:

c) Spray or paint the protein bait mixture onto either the upper trunk or branch of a tree OR spray the protein bait mixture onto the underside of foliage, avoiding any fruit. The spray site should be high enough to prevent children and pets from reaching the bait.

Integrated Pest Management (IPM) for Backyard Fruit Fly Problem

Please note that these methods do NOT control fruit fly-they only protect your fruit & vegies from the pest.

Pruning

- This can be used to make the tree a more easily managed size to harvest fruit and also to implement Qfly control methods such as exclusion, baiting and sanitation.

Exclusion

- This method creates a physical barrier to stop the Qfly from reaching your fruit and vegetables. Examples are nets, bags and sleaves. These can either protect individual fruits or the whole plant or tree. Contact your nursery or agricultural retailer for purchase of products.

Sanitation

- Pick up and destroy all fallen or unwanted fruit from the garden and seal in a black plastic bag. Leave in the sun for several days and then remove. This will stop Qfly maggots in the fruit from moving into the soil to pupate and later emerging as adult Qfly.

Early harvest

- Harvest fruit early to avoid Qfly infestation and maggots in the fruit. Plant susceptible vegetables, such as tomatoes, capsicums, chillies & eggplants early or plant early maturing varieties to avoid large numbers of fruit flies.

Fruit tree removal

- For consideration & respect for the Riverina horticulture industry & your fellow community members remove fruit trees that are hosts to Qfly if you do not or cannot look after them.

Other unexpected fruit hosts:
Loquat *(Eriobotrya Japonica)* and
Feijoa *(Pineapple Guava, Acca Sellowiana)*

Photos: Wikipedia

For further information:

Riverina Fruit Fly Campaign Coordinator
Tammy Galvin
Office of Water Building, Chelmsford Place
LEETON NSW 2705
P: 02 6953 0723
M: 0427 221 651
E: riverinabiosecurity@hotmail.com

Home visits are offered for fruit fly identification

CONTACT: Local nurseries and agricultural product retailers for Queensland fruit fly control/management products & rates of protein lure & insecticide rates.

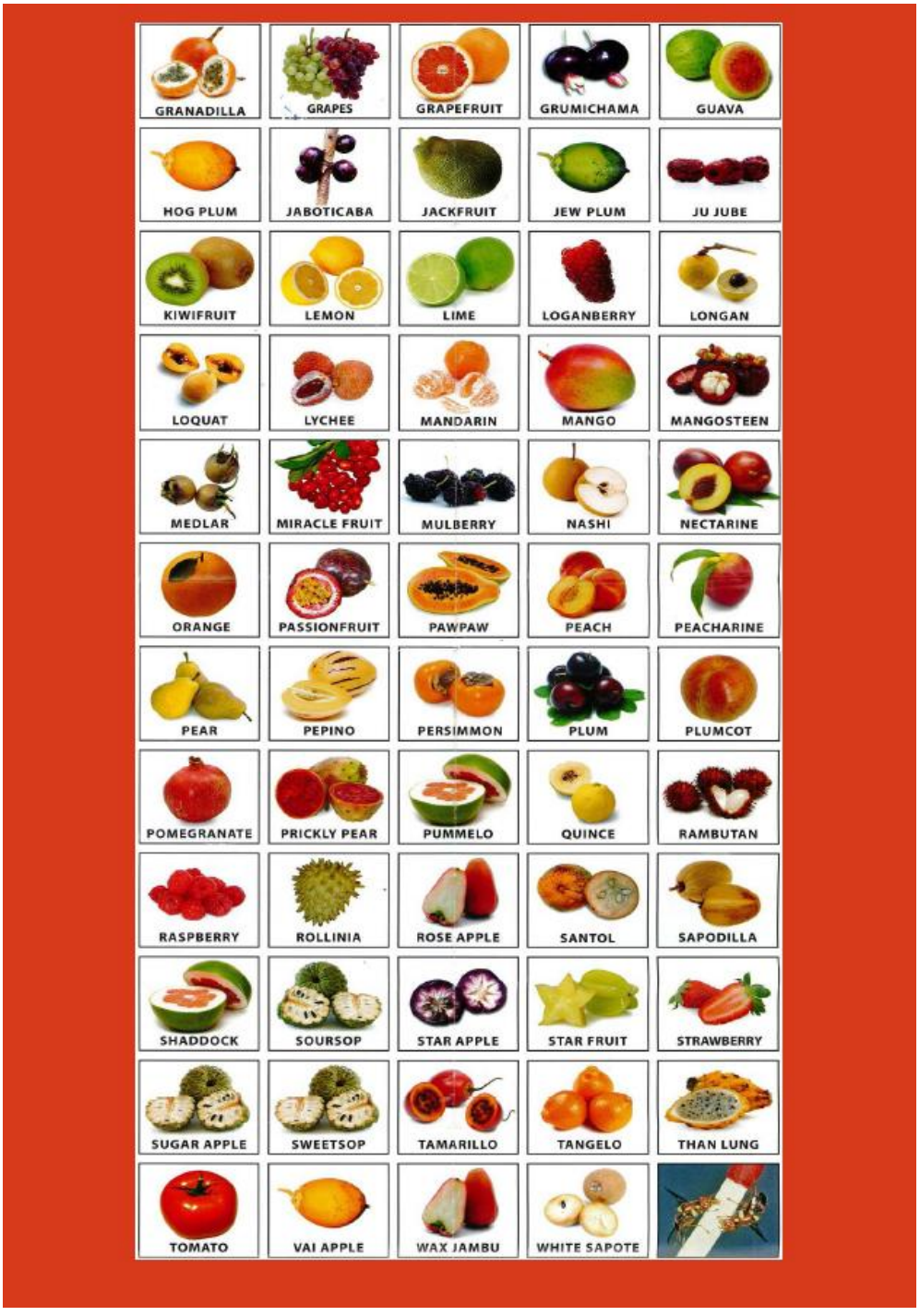
NSW GOVERNMENT Local Land Services Riverina

HAL Horticulture Australia

Riverina Biosecurity Inc.

Appendix N. Queensland Fruit Fly Management Guide- Backyard Growers continued.

Appendix N. Queensland Fruit Fly Management Guide- Backyard Growers continued.



Appendix O. Scientific Paper 1.Associated with Project

Rose hips, *Rosa* sp., a new host for Queensland fruit fly *Bactrocera tryoni* (Froggatt) in south eastern Australia

Galvin, T.[1], Mellberg, A.[2] and Dominiak, B.C. [3*]

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Summary

There is limited information on minor or infrequent hosts for Queensland fruit fly. Informal surveys at Deniliquin and Buronga in New South Wales detected larvae of Queensland fruit fly in rose hips. Queensland fruit fly adults were reared out from samples. This is the first report of Queensland fruit fly infesting and completing their lifecycle in rose hips. Implications are drawn on the management of *Rosa* sp. in areas sensitive to Queensland fruit fly.

Keywords *Bactrocera tryoni*, *Rosa*, fruit fly management

INTRODUCTION

Queensland fruit fly (Qfly), *Bactrocera tryoni* (Froggatt) is a serious pest of horticulture in Eastern Australia (Dominiak and Daniels 2012). Most hosts were originally reported by Bateman (1991) and used in the Code of Practice for the Management of Queensland fruit fly (Anon. 1996). The host list was reviewed by Hancock *et al.* (2000) although the data for some hosts such as grapes and olives was

less clear (Dominiak 2011). There are 14 members of the family *Rosaceae* recorded as hosts for Qfly including loquats (*Eriobotrya japonica*), apricots (*Prunus armeniaca*) and peaches (*P. persica*) that are recognised preferred hosts. Additionally within this group, blackberry *Rubus fruticosus* is a host and is well known as containing raspberry ketone, a common male Qfly attractant used in trapping and the male annihilation technique (Allman 1958, Dominiak and Nicol 2012). Rose hips, *Rosa* sp., are not listed as a host. Traditionally rose hips have been used in herbal teas, jam and wine along with a range of food products. Rose hips are used to treat digestive disorders, high blood pressure and are also high in vitamin C (Ziegler *et al.* 1986).

In response to outbreaks of *B. tryoni* or as part of the management of the pest in endemic areas, potentially infested samples are collected in the field and sent for identification at Orange. This paper reports on the results of two of these samplings involving rose hips.

METHODS AND RESULTS

Deniliquin

Deniliquin in southern New South Wales has been endemic for *B. tryoni* for nearly 10 years however there are efforts by urban residents to manage fruit fly and grow backyard fruit. In March 2015, suspect samples of capsicum were collected, along with one sample of rose hips picked from a rosebush and one sample of rose hips collected from the ground. Samples were sent to Orange Agricultural Institute for identification. All samples were labelled and held in a constant temperature room at

25°C at 70% RH. for three weeks, monitored daily. Samples were examined for the presence of larvae while other fruit samples were held in rearing cages and insects allowed to complete their life cycle.

Twelve *B. tryoni* larvae were found in the capsicum and six *B. tryoni* larvae were found in the rose hips from the bush sample. Regarding adult survival, the capsicum yielded six female *B. tryoni*. The rose hips in the bush yielded one female *B. tryoni* and the rose hips picked from the ground produced one male and one female *B. tryoni*

Buronga

The results at Deniliquin prompted additional surveys and assessments. Rose hips were sampled at Buronga in a location where high numbers of *B. tryoni* had been trapped. Samples were sent to Orange Agricultural Institute for identification and treated in a similar fashion to the Deniliquin samples. Samples were examined for the presence of larvae and larvae identified while other rose hip samples were held in rearing cages and insects allowed to complete their life cycle. The individual hips were weighed and counted. One sample was used to assess the number of larvae per hip. A second sample of hips were placed in a controlled atmosphere chamber and adults allowed to emerge (Table 1).

DISCUSSION

The detection of larvae and adult emergence from capsicum is consistent with Hancock *et al.* (2000). However this paper is the first peer reviewed paper to indicate that rose hips support *B. tryoni* larvae and that adults could complete their life cycle in rose hips. Given the size of this current work, we could not explore all available

options. Rose hips belong to several cultivars and we do not have the resources to explore cultivars. We found two sizes of fruit: approximately 7-8 g and larger, approximately 13 g. possibly indicating two rose varieties. We attempted to quantify the scale of the host capacity. One calculation indicates that rose hips may potentially produce 357 adults (mixed sexes) per kilogram of hips. The larger rose hips produced about 20% of that number however there is no evidence if this is linked to cultivar or random events. This capacity to produce adults needs to be compared with other known hosts to gain some sort of ranking. Whilst we report here the ability of rose hips to host eggs through to adults, we have no idea of the probability of being stung. We assume that the use of rosehips as a host by *B. tryoni* is linked to absence of other recognised hosts at the end of autumn and early winter.

Queensland fruit fly has shown itself to be remarkably robust pest with a broad range of hosts (Hancock *et al.* 2000). Urban fruit growers and commercial producers should be aware that rose hips may act as an alternative host, particularly when other preferred hosts may not be available, at least in late autumn or winter as was the case in our collection. More research is required to assess if other members of the Rosaceae family may act as hosts for Qfly.

Commercial producers intending to use market access standards such as pest free areas or areas of low pest prevalence (Anon.1996, Dominiak *et al.* 2015) or similar protocols to access domestic or international markets also need to be aware that unmanaged rose bushes may act as a reservoir for *B. tryoni* over winter. Rose bush management has traditionally recommended that rose hips are removed (called dead-heading) to encourage new growth and flowering. Our results support the removal of

on-plant rose hips and fallen rose hips should be removed and not left on the ground for decreasing the risk of further infection in *B. tryoni* sensitive areas. . There is some speculation that the fibrous nature of rose hips may act as insulation against frost (Kerruish, pers. com.) and therefore support new populations in spring. If rose hips can support over-wintering populations, this circumstance, along with the more favourable urban environment (Dominiak *et al.* 2006), may explain why *B. tryoni* populations are frequently found in urban centres and why there are cases of poor fruit fly control despite adequate chemical treatment of recognised hosts. Urban centres are perceived to be the source of flies into surrounding commercial production. However, roses are a common garden plant in rural and urban situations and need to be managed to minimise the host potential of roses. More research is required to better understand the implications of this discovery.

ACKNOWLEDGMENTS

Michelle Rossetto and Zoe Edwards assisted in the laboratory. Peter Gillespie and Louise Rossiter reviewed an earlier draft of this paper. The sample collection and identification was funded by the New South Wales Department of Primary Industries.

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Appendix O. Scientific Paper 1.Associated with Project

Sample	Source	Number of rose hips	Average weight per rose hip (g)	Number of adult Qfly reared from sample	Number of adult flies per kg of rose hip
	Plant			2 female, 1 male	357.14
	Ground			nil	
3	Non recorded		13.75	1 female	72.72

Table 1. Rose hip and Queensland fruit fly information from the Buronga samples in 2015.

Sample	Source	Number of rose hips	Average weight per rose hip (g)	Number of adult Qfly reared from sample	Number of adult flies per kg of rose hip
1	Plant	9	8.4	2 female, 1 male	357.14
2	Ground	6	7.1	nil	nil
3	Non recorded	2	13.75	1 female	72.72

Evaluation of Cone and Lynfield traps at Yanco in autumn 2014.

Galvin, T[1]., Fanson, B.G.[2], Liguori, P.[3] and Dominiak, B.C[4].

[1]Riverina Local Land Services
[2]Fanson Consulting
[3]Pablo Liguori Consulting
[4]NSW Department of Primary Industries

Introduction

Lynfield traps have been the standard fruit fly trap design since 1990. A range of new trap designs and lures have become available after 2010. In order to improve surveillance and confidence in surveillance, the Probodelt cone trap was tested against the standard Lynfield trap using the standard NSW configuration of cuelure and malathion.

Methods

The trial was established on the Yanco Agricultural Institute in a block of Valencia orange trees established in 1986 and irrigated by drip irrigation. The trial was established on 28 March 2014 and finalised on 19 June 2014. The trial layout was a Latin square design with five trap/lure/toxicant treatments and 5 replicates per lure treatment. Blocking factors were orchard row and location within the row. Traps were inspected weekly (10 of weeks of data??) and all fruit flies were sent to Orange Agricultural Institute for identification. The treatments are listed below.

Table 1. Description of treatments

Treatment	Trap type	Lure	Toxicant
A	Spanish cone	Spanish Lure	Cypermethrin
B	Lynfield	Spanish Lure	Malathion
C	Lynfield	Cuelure	Malathion
D	Lynfield	Cuelure and Methyl Eugenol	Malathion
E	Lynfield	No lure	Malathion

Results

Table 2. Trap results with numbers of Queensland fruit fly and Island fly.

Treatment	Total number of flies trapped	% of traps with one or more flies	Mean number of flies trapped with standard deviation
Queensland fruit fly (*Bactrocera tryoni*)			
Treatment A	321	92.5	8.03 ± 6.76[#]
Treatment B	217	80	5.42 ± 6.50
Treatment C	145	80	3.62 ± 3.65
Treatment D	195	90	4.88 ± 4.87
Treatment E	22	40	0.55 ± 0.78[#]

Island Fly (*Dirioxa pornia*)			
Treatment A	9102	100	227.55 ± 219.33#
Treatment B	15	25	0.38 ± 0.90
Treatment C	14	20	0.35 ± 0.83
Treatment D	3	7.5	0.07 ± 0.27
Treatment E	6	12.5	0.15 ± 0.43

= results are significantly different ($p < 0.01$) to Treatment C. The statistical model included week, orchard row, and position in row as blocking factors.

For Queensland fruit fly, the Spanish cone trap (Treatment A) trapped significantly more flies compared to the standard NSW trap (Treatment C). Treatment E was the control treatment and still trapped very low number of flies. This would suggest that some flies blunder into the traps and are killed before they can escape (the blunder principle). The addition of methyl eugenol has been demonstrated in the past to increase trappings; our results showed a similar trend but trapping rates were not significantly different.

For island fly, the cone trap caught significantly more flies than any other treatment using Lynfield traps. The blunder principle was again demonstrated in this species.

In general, there was high variability in samples given that the values of the mean was often very similar to the standard deviation. After accounting for variability due to week and position in orchard, there was strong evidence that the cone traps outperform the NSW configuration of the Lynfield trap. The Probodelt cone trap is commercially available while the NSW Lynfield traps are produced under permit from the APVMA.

Queensland Fruit Fly Information for Visitors to Narrandera, Leeton, Griffith, Murrumbidgee and Carrathool Shires

The information below is an update on what you can say to visitors to the ex PFA (Pest Free Area) of Narrandera, Leeton, Griffith, Murrumbidgee and Carrathool Shires.

'The previous PFA (Pest Free Area) of Narrandera, Leeton, Griffith, Murrumbidgee and Carrathool Shires have been deregulated. The area is no longer regulated.

These areas are, however, still a quarantine zone.

It is preferred that visitors purchase fruit locally whilst in the area and not bring fruit or tomatoes, capsicums, chillies or eggplants into these shires as this is still one of the major fruit and vegetable growing areas of NSW.

Growers ask that visitors be respectful of the industry and not bring fruit and vegetable into these shires.

Riverina Fruit Fly Campaign Coordinator

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